Supreme Court, U.S.
FILED
APR 29 1996
OFFICE OF THE CLERK

No. 95-1764

In The

Supreme Court of the United States

October Term, 1995

SARATOGA FISHING CO.,

Petitioner,

vs.

J.M. MARTINAC & CO.;
MARCO SEATTLE, INC.,

Respondents.

Petition for a Writ of Certiorari to the United States Court of Appeals for the Ninth Circuit

PETITION FOR A WRIT OF CERTIORARI

KEITH ZAKARIN
Counsel of Record
RICE FOWLER BOOTH
& BANNING
Attorneys for Petitioner
402 West Broadway
Suite 850
San Diego, California 92101
(619) 230-0030

8757
Lutz Appellate Services, Inc.
(800) 3 APPEAL • (800) 5 APPEAL • (800) BRIEF 21

QUESTIONS PRESENTED

1. Does the Ninth Circuit's majority opinion on how courts are to determine "other property" in maritime product liability suits conflict with this Court's decision in *East River S.S. Corp. V. Transamerica Delaval Inc.*, 476 U.S. 858 (1986)?

2. Has the Ninth Circuit, by holding that the "product" at issue in maritime product liability suits is the ship as sold, not by the manufacturer, but by the last person who owned the ship, abrogated the well established law of maritime products liability set forth in *East River,* and the decisions of other courts, including the Fifth Circuit's opinion in *Nicor Supply Ships Associates v. General Motors,* 876 F.2d 501, 505-06 (5th Cir. 1989)?

PARTIES TO THE PROCEEDINGS

The parties to this action and their counsel of record are as follows:

For Petitioner Saratoga Fishing Co.:

Rice Fowler Booth & Banning
Keith Zakarin, Esq.
402 W. Broadway, Suite 850
San Diego, CA 92101
Telephone: (619) 230-0030

For Respondent J.M. Martinac & Co.:

Koler, Kumpf & Prows
Duncan B. Koler, Esq.
3033 Fifth Ave., Suite 300
San Diego, CA 92103
Telephone: (619) 683-2944

For Respondent Marco Seattle, Inc.:

Daniel B. MacLeod, Esq.
110 West "C" Street, Suite 1600
San Diego, CA 92101
Telephone: (619) 234-7000

CORPORATE DISCLOSURE

Petitioner Saratoga Fishing Co. has no parent company or subsidiaries.

TABLE OF CONTENTS

	Page
Questions Presented	i
Parties to the Proceedings	ii
Table of Contents	iii
Table of Citations	v
Opinions Below	1
Statement of Jurisdiction	1
Statement of the Case	1
Reasons for Granting the Writ	6
I. The Ninth Circuit's Ruling Places the Ninth Circuit in Direct Conflict with this Court's Decision in *East River* and with the Fifth Circuit's Decision in *Nicor* and Other Cases.	6
II. The Ninth Circuit Erred in Deciding How "Other Property" Is Determined in Maritime Product Liability Cases.	7
III. The Ninth Circuit Misread *East River* to Import Contract Analysis into Products Liability Tort Law.	8
A. Strict Products Liability Law Applies Only to Sales by Commercial Manufacturers, Distributors or Retailers to Consumers.	9

B. The Ninth Circuit's Second Revised Opinion Undermines the Rationale for Applying Strict Products Liability Only to Commercial Manufacturers and Distributors. 11

C. The Ninth Circuit Misunderstood That in *East River*, this Court First Determined That Products Liability Law Did Not Apply Before Going on to Reach a Decision under Warranty Law. 14

D. The Ninth Circuit Confused *East River*'s Discussion of Warranty Law with its Discussion of Products Liability Law. 16

E. *East River* Understood That "Economic Loss" Did Not Include Damage to Property Physically Separate From the Defective Product. 17

IV. The Ninth Circuit's Decision Places It in Direct Conflict with this Court, the Restatement Second and the Fifth Circuit, Which Look to What the 402A Seller Delivered, Not to What a Downstream Consumer Sold, to Determine the "Product" Sold by the 402A Seller. 21

V. The Ninth Circuit's Ruling Creates Anomalies in the Law. 24

Conclusion 26

TABLE OF CITATIONS

Cases Cited:

East River S.S. Corp. V. Transamerica Delaval Inc., 476 U.S. 858 (1986) 7, 8, 9, 11 12, 13

Mays Towing v. Universal Machinery Co., 755 F. Supp. 830 (S.D. IN. 1990) 23

McDermott, Inc. v. Clyde Iron, 979 F.2d 1068 (5th Cir. 1993) 23

Nicor Supply Ships Associates v. General Motors, 876 F.2d 501 (5th Cir. 1989) ..... i, 3, 4, 6, 7, 21

Pan-Alaska Fisheries, Inc., 565 F.2d 1129 (9th Cir. 1977) 4, 9, 22

Seely v. White Motor Co., 63 Cal. 2d 9, 45 Cal. Rptr. 17, 403 P.2d 145 (1965) 13, 15, 17, 18, 19, 20

Shipco 2295, Inc. v. Avondale Shipyards, Inc., 825 F.2d 925 (5th Cir. 1987) 14, 23, 25

Statutes Cited:

28 U.S.C. § 1254(1) 1

28 U.S.C. § 1333 1

U.C.C. § 2-316 18

Page

Rules Cited:

Supreme Court Rule 10(a) 6

Supreme Court Rule 10(c) 6

Other Authorities Cited:

Restatement (Second) of Torts, Section 402A .....
..... 3, 4, 8, 9, 10, 11, 18, 21, 26

Restatement (Third) of Torts: Products Liability, § 4
(Tentative Draft No. 2, March 13, 1995) 11

Restatement (Third) of Torts: Products Liability, § 6
(Tentative Draf No. 2, March 13, 1995) 21, 22

APPENDIX

Appendix A — Ninth Circuit Court of Appeals Order Denying Petition for Rehearing Filed January 30, 1996
..... 1a

Appendix B — Ninth Circuit Court of Appeals Order and Opinion Affirming in Part, Reversing in Part, and Remanding the Matter to the District Court Filed October 26, 1995 ..... 4a

Appendix C — Opinion and Order of the United States Court of Appeals for the Ninth Circuit Filed August 4, 1995 ..... 42a

Page

Appendix D — Opinion of the United States Court of Appeals for the Ninth Circuit Filed August 4, 1995 .. 79a

Appendix E — Findings on Liability Made by the District Court on May 15, 1993 ..... 114a

Appendix F — Oral Finding on Damages Delivered by the District Court on August 31, 1993 ..... 173a

OPINIONS BELOW

The opinion of the Ninth Circuit Court of Appeals, filed October 26, 1995 (App., 4a), is reported at 69 F.3d 1432 (9th Cir. 1995). Neither the district court's Findings on Liability (App., 114a), nor its Oral Findings on damages (App., 173a) are reported. The original opinion of the Ninth Circuit Court of Appeals, filed April 25, 1995 (App., 80a), and the first revised opinion of the Ninth Circuit Court of Appeals, filed August 4, 1995 (App., 43a) are not published.

STATEMENT OFJURISDICTION

The Ninth Circuit Court of Appeals entered its order denying rehearing of Saratoga's motion for reconsideration on January 30, 1996. App., 1a. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1). Because these claims arose on the high seas, they fall within the admiralty jurisdiction of the federal courts under 28 U.S.C. §1333.

STATEMENT OF THE CASE

Petitioner Saratoga Fishing Co. ("Saratoga") sued Respondents for damages resulting from a conflagration that occurred on board the M/V SARATOGA on or about January 16, 1986, in which M/V SARATOGA burned and sank. M/V SARATOGA was originally purchased in or about 1972 from the manufacturer, J.M. Martinac & Co. ("Martinac"), by Joseph Madruga, a private individual. The hydraulic system on the vessel was designed by Marco Seattle Inc. ("Marco"). The vessel was completed in 1972, taken to Panama and outfitted with a seine and other fishing equipment, and Madruga began fishing operations with the vessel, with Manual Vargas as its captain.

In 1974, Joseph Madruga sold M/V SARATOGA to the Manual S. Vargas, Jr. Corporation, which later changed its name to Saratoga Fishing Co. At the time of that sale, M/V SARATOGA was equipped with five speedboats, a purse skiff, a seine, and various electronic equipment. On or about January 16,1986, a hydraulic hose detached from its coupling, spraying hydraulic fluid onto the turbocharger. Because Martinanc and Marco had failed to provide any effective shielding, the hydraulic fluid sprayed onto the adjacent engine surfaces and turbocharger and ignited. The resulting conflagration burned and sank M/V SARATOGA. The crew just managed to get off the ship into a skiff before the vessel sank.

The district court concluded that Marco and Martinanc were strictly liable for the loss of M/V SARATOGA in that the hydraulic system was defectively designed. The court awarded damages to Saratoga in the amount of $452,326, approximately one-third of what it determined were the total of Saratoga's damages. The total damage award was reduced by two thirds for comparative negligence. The award included the loss of "other property" on board M/V SARATOGA, including the tuna catch, seine, skiff, fuel, equipment, payments by Saratoga to the crew for their personal property losses, the cost of rescue and certain cash. With pre-judgment interest, the total award to Saratoga after reduction by two-thirds for comparative negligence came to $734,940.38.

All parties appealed the district court's decision on various grounds, only one of which, the determination of "other property," is at issue in this Petition. In its original opinion, issued April 25, 1995 (the "Original Opinion") (App., 80a), the panel correctly recognized that the "product" in products liability cases, including maritime products liability cases, is determined by what the *manufacturer* places in the stream of commerce. The court therefore agreed with the Fifth Circuit that,

> additions to a vessel should be considered other property "separate from the product that the ***manufacturer originally*** sold, if the distinction enunciated in *East River* between a 'product' and 'other property' is to have any meaning."

App., 108a, *quoting Nicor,* 876 F.2d at 505 (emphasis added, italics in the original). To distinguish the "product" from "other property" on M/V SARATOGA, the court looked to "the vessel that Martinac sold to Madruga in 1972." App., 108a. Including the items not part of the vessel originally sold by Martinac to Madruga,

> would undermine the 'other property' exception contained in *East River.* Under that rationale, the product would envelop everything else useful in the operation of the vessel, which is not consistent with the balance struck by the Supreme Court.

App., 108a.

On August 4, 1995 (the "First Revised Opinion") (App., 43a), the same panel scuttled its well-reasoned Original Opinion and changed course 180 degrees. Misreading *East River,* the panel unanimously held that the manufacturer's "product" is defined for strict products liability as the object that was last transferred from *any* seller to a buyer, even if the seller, as in this case, is a private person and *not* a "seller . . . who is engaged in the business of selling such a product" as defined by the Restatement (Second) of Torts, Section 402(1)(a). App., 72a-72b. Saratoga then moved for reconsideration, noting that the court's ruling abandoned Section 402A of the Restatement (Second) of Torts, ignored the Ninth Circuit's earlier decision in

Pan-Alaska Fisheries, Inc., 565 F.2d 1129 (9th Cir. 1977) adopting Section 402A as the law of the Ninth Circuit, placed the Ninth Circuit in direct conflict with the Fifth Circuit by disregarding the well established maritime rule set by the Fifth Circuit in *Nicor Supply Ships Associates v. General Motors*, 876 F.2d 501 (5th Cir. 1989) and, and misread and placed the Ninth Circuit in conflict with this Court's seminal decision in *East River v. Transamerica Delaval*, 476 U.S. 858 (1986). Saratoga again sought rehearing.

On October 26, 1995, the winds shifted again and a third superseding opinion was issued (the "Second Revised Opinion"). App., 4a. It is this opinion that is at issue in this Petition. In the Second Revised Opinion, only two members of the panel, the Honorables Beezer, J. and Ezra, J. (the "majority"), voted to stand by their First Revised Opinion of August 4, 1995. The third member, the Honorable Noonan, J., parted company with the majority on its determination of "other property," recognizing that its decision placed this Circuit in conflict not only with the Fifth Circuit's decision in *Nicor*, but with the Ninth Circuit's previous decision in *Pan-Alaska* and with this Court's decision in *East River* as well. App., 40a-41a. That dissent, set forth in full, encapsulates perfectly the Ninth Circuit's error and states the principal basis for this Petition:

> I concur in the opinion of the court, except as to its exclusion of damages for the skiff, seine net, fuel, spare parts and other miscellaneous equipment sold by Madruga to Saratoga Fishing as part of the sale of the M/V SARATOGA. None of this property was manufactured or sold by Martinac. Under *East River*, 476 U.S. 858, 867 all of it was 'other property,' damages for which are recoverable in tort. The court abandons *East River* and puts this circuit in conflict with another major maritime circuit, *Nicor Supply Ships Associates v. General Motors*, 876 F.2d 501, 505-06 (5th Cir. 1989). The opinion also repudiates controlling authority in this circuit, *Pan-Alaska Fisheries, Inc. v. Marine Construction & Design Co.*, 565 F.2d 1129 (9th Cir. 1977). That case accepted 'as the law of products liability in this circuit, at least for this case arising in admiralty,' the Restatement (Second) of Torts, §402A *Id.* at 1135. Under the Restatement, the original seller of the product in a defective condition that is unreasonably dangerous that has entered the stream of commerce is strictly liable to the ultimate consumer for physical harm caused to that consumer's property. Saratoga Fishing is here the ultimate consumer; Martinac is the original seller; the property damaged was Saratoga Fishing's and no more part of the product sold by Martinac than was the tuna catch for which damages are granted.
>
> The court appears to have been swayed by the consideration that additions made by a middleman could increase the original seller's liability. That of course is a risk the seller of an unreasonably dangerous, defective product takes. If the explosion had occurred while Madruga still owned the boat after adding the skiff and net, there is no doubt that Martinac would have been liable for those additional items. Martinac's exposure should not decrease because

> Madruga sold the ship to Saratoga Fishing. Whatever theory one adopts, the liability of the original seller may change as the ultimate consumer adds or subtracts property which can be affected by the defective product. The theory of strict liability holds that the seller is stuck whatever foreseeable damage to the consumer's other property his product causes.

App., 40a-41a, Noonan, J., concurring and dissenting.

REASONS FOR GRANTING THE WRIT

I.

THE NINTH CIRCUIT'S RULING PLACES THE NINTH CIRCUIT IN DIRECT CONFLICT WITH THIS COURT'S DECISION IN *EAST RIVER* AND WITH THE FIFTH CIRCUIT'S DECISION IN *NICOR* AND OTHER CASES.

The Ninth Circuit is a major maritime law court. With all due respect to the Ninth Circuit, the justices in the majority in the October 26 Second Revised Opinion issued an opinion that will, if given effect, totally and wrongfully disrupt maritime products liability law in not only the Ninth Circuit, but in the United States as a whole. By misreading and misapplying *East River*, the Ninth Circuit has decided an important question of maritime law "in a way that conflicts with relevant decisions of this Court." Rules of the Supreme Court, Rule 10(c). Moreover, the Ninth Circuit has, if its decision is given effect, "entered a decision in conflict with the decision of another United States court of appeals on the same important matter," namely, the Fifth Circuit's ruling in *Nicor* and other decisions. Rules of the Supreme Court, Rule 10(a).

The Ninth Circuit's erroneous decision creates an intolerable situation that will effectively destroy claims for "other property" by second and subsequent purchasers of a vessel, even though the damage to other property was caused by the exact same defect that existed at the time the manufacturer sold the vessel to the first purchaser. Effectively, once a vessel is sold or transferred by the first buyer, the second vessel buyer has no remedy for product defects that cause damage to "other property" added to the vessel by the first buyer. Resales or transfers of vessels to another owner or operator are, however, commonplace, and often occur within a short time of the useful life of the vessel. It is also common that, as in this case, after a vessel is purchased, other items are added to outfit it for its particular purpose. These additional items, as can be seen in this case, can amount to as much or more than one-third of the total value of the vessel.

II.

THE NINTH CIRCUIT ERRED IN DECIDING HOW "OTHER PROPERTY" IS DETERMINED IN MARITIME PRODUCT LIABILITY CASES.

Under its Original Opinion, the panel correctly recognized that the "product" is delineated by that which a *manufacturer* places in the stream of commerce. The Original Opinion correctly held that the distinction between the "product" and "other property" in a products liability claim turned on whether the property was "'separate from the product that the ***manufacturer originally*** sold" to the first buyer; in this case, what Martinac sold to Joseph Madruga, the original buyer of M/V SARATOGA. App., 108a (emphasis added, italics in the original), *citing Nicor,* 876 F.2d at 505. The panel's Second Revised Opinion (and its First Revised Opinion) misread *East River* as holding that "product" is defined for strict products

liability as the object that was last transferred from any seller to a buyer, even if the seller, as in this case, is an occasional seller, *not* a "seller . . . who is engaged in the business of selling such a product" as defined by the Restatement (Second) of Torts, Section 402(1)(a). App., 33a-35a.

The Second Revised Opinion abrogates fundamental products liability principles that (1) only commercial sellers (*e.g.*, manufacturers and distributors), not end-users of a product can be held liable for a product's defects; (2) the "product" at issue in strict products liability analysis is the product the manufacturer or distributor placed into the stream of commerce; (3) product liability cannot be disclaimed by warranty; and (4) "[t]he consumer's cause of action does not depend upon the validity of his contract with the person from whom he acquires the product. . . ." Restatement (Second) of Torts, §402A, cmt. m (1977). The Ninth Circuit erred by deviating from first principles of product liability law, then misreading *East River* as supporting its deviation. The Ninth Circuit's error is profound and should be corrected.

III.

THE NINTH CIRCUIT MISREAD *EAST RIVER* TO IMPORT CONTRACT ANALYSIS INTO PRODUCTS LIABILITY TORT LAW.

The Ninth Circuit erroneously misread *East River* as holding that a downstream sales contract between consumers determines "the product" at issue for purposes of distinguishing "the product" from "other property." App., 33a-35a. The Ninth Circuit was wrong. Looking to a downstream contract to define a manufacturer's "product" for strict products liability purposes ignores *East River's* determination that the recovery of property damages under maritime products liability law, including strict

products liability, is controlled by Section 402A of the Restatement (Second) of Torts. *East River*, 476 U.S. at 875, *citing with approval Pan-Alaska Fisheries, Inc.*, 565 F.2d 1129, 1135 (9th Cir. 1977) (adopting Restatement (Second) of Torts Sec. 402A (1965)).

A. Strict Products Liability Law Applies Only to Sales by Commercial Manufacturers, Distributors or Retailers to Consumers.

The Ninth Circuit initially erred when it framed the question before it as "whether the 'product' changed when Madruga added various components, including a skiff, seine and other miscellaneous parts, to the vessel and resold it to Saratoga Fishing." App., 33a-34a (emphasis added). By answering "yes," the Ninth Circuit placed Joseph Madruga, a consumer, in the shoes of Martinac, the manufacturer of M/V SARATOGA, for purposes of determining what Martinac's product was. The Ninth Circuit was wrong.

Section 402A of the Restatement (Second) of Torts, cited with approval by this Court in *East River* and adopted by the Ninth Circuit in *Pan-Alaska Fisheries, Inc.*, 565 F.2d at 1134-1135, provides as follows:

> § 402 A. Special Liability of Seller of Product for Physical Harm to User or Consumer.
>
> (1) One who *sells* any product in a defective condition unreasonably dangerous *to the user or consumer or to his property* is subject to liability for physical harm thereby caused to the *ultimate* user or consumer, or to his property, if

> (a) the seller is *engaged in the business of selling such a product*, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in Subsection (1) applies although

> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) *the user or consumer has not bought the product from or entered into any contractual relation with the seller.*

Restatement (Second) of Torts, § 402A (1977) (emphasis added).

A "seller" of a product under Section 402A is unequivocally not a consumer reselling the product, but a commercial seller (*e.g.*, a manufacturer, distributor) of that product:

> The rule stated in this Section applies to any person engaged in the business of selling products for use or consumption. It therefore applies to any *manufacturer* of such product, to any *wholesale or retail dealer or distributor*, and to the operator of a restaurant.

Restatement (Second) of Torts, § 402A, cmt. f (1977) (emphasis added). A "product," as defined by the most recent Tentative Draft of the Restatement (Third) is not an item resold by one consumer to another consumer but,

> something *distributed commercially* for use or consumption. Most but not necessarily all products are tangible personal property; most have been subjected to processing and fabricating prior to entering the stream of commerce; and most pass through a commercial chain of distribution before ultimate use and consumption.

Restatement (Third) of Torts: Products Liability, § 4 (Tentative Draft No. 2, March 13, 1995) (emphasis added).

Joseph Madruga indisputably was not in the business of selling tuna boats. Madruga was a small shipowner who sold his boat to his former captain. App., 6a. He was *not* a commercial seller when he sold M/V SARATOGA. He therefore could *not*, by definition, have placed Martinac's product into the stream of commerce as a seller under Section 402A of the Restatement, and he could not "change" the manufacturers' product for product liability purposes.

B. The Ninth Circuit's Second Revised Opinion Undermines the Rationale for Applying Strict Products Liability Only to Commercial Manufacturers and Distributors.

The rationale for strict products liability, fully recognized by *East River*, the Restatement, and the Ninth Circuit itself, centers on the *manufacturer's* ability to spread the risk of defects, and to correct defects in the product:

> [T]he justification for the strict liability has

been said to be that the seller, *by marketing his product for use and consumption*, has undertaken and *assumed* a *special responsibility toward* any member of *the consuming public* who may be injured by it; that the *public* has the right to and does expect, in the case of products which it needs and for which it is forced to rely upon the seller, that reputable sellers will stand behind their goods; that public policy demands that the burden of accidental injuries caused by products intended for consumption *be placed upon those who market them*, and be *treated as a cost of production* against which liability insurance can be obtained; and that the consumer of such products is entitled to the maximum of protection at the hands of someone, and the proper person to afford it are *those who market the products.*

Restatement (Second) of Torts, § 402A, cmt. c (1977) (emphasis added). This Court in *East River* likewise understood that this rationale applied to the *manufacturer*, not the occasional downstream seller:

> The *manufacturer* is liable whether or not it is negligent because 'public policy demands that responsibility be fixed wherever it will most effectively reduce the hazards to life and health inherent in defective products *that reach the market.*' *Escola v. Coca Cola Bottling Co. of Fresno*, 24 Cal.2d, at 462, 150 P.2d, at 441 (opinion concurring in judgment).

East River, 476 U.S. at 866-867 (emphasis added).

East River understood that a manufacturer's strict liability for defective products stands separate and apart from contract based warranty law and is based on a wholly separate rationale:

> Products liability grew out of a public policy judgment that people need more protection from dangerous products than is afforded by the law of warranty. *See Seely v. White Motor Co.*, 63 Cal.2d 9, 15, 45 Cal.Rptr. 17, 21, 403 P.2d 145, 149 (1965).

East River, 476 U.S. at 866.[1]

Under the Ninth Circuit's reasoning, an occasional seller like Joseph Madruga cannot be held liable under products liability law for a products' defects, and none of the rationales upon which strict product liability rests apply to him. Yet the Ninth Circuit's bizarre conclusion is that this same occasional seller can nonetheless "change" the manufacturer's "product" for products liability purposes. App., 34a-35a. The focus of the Ninth Circuit's inquiry was not on what the manufacturer placed into the stream of commerce, but what the downstream consumer, Madruga, resold. App., 34a-35a. The district court (and the dissent) correctly rejected this awkward result: "I conclude that the definition of the vessel . . . would change with each successive sale of the boat, including and then excluding the new or removed items on board. This rule of law would be awkward and illogical." App., 176a; *see also* App., 41a, Noonan, J., concurring and dissenting.

---

1. Again siding with *Seely*, *East River* recognized that damage to property did not differ from damage to persons in strict products liability: "For similar reasons of safety, the *manufacturer's* duty of care was broadened to include protection against property damage. [citations omitted] Such damage is considered so akin to personal injury that the two are treated alike. *See Seely*, 63 Cal. 2d at 19, 45 Cal. Rptr., at 24, 403 P.2d, at 152." *East River*, 476 U.S. at 867.

C. The Ninth Circuit Misunderstood That in *East River*, this Court First Determined That Products Liability Law Did Not Apply Before Going on to Reach a Decision under Warranty Law.

The Ninth Circuit claimed that *East River* "focused on the terms of 'the charterers' agreements with the owners." App., 34a. The Ninth Circuit believed that "the contract being discussed" throughout *East River* was the contract "between the first buyer and the bareboat charterer, who the court treated as equivalent to a second buyer." App., 34a-35a. The Ninth Circuit was wrong. It misunderstood whom the "buyer" was that this Court was referring to in *East River* when, in the first part of its decision, this Court performed its products liability analysis to determine what precisely the "product" at issue was. Like *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925 (5th Cir. 1987), *East River* focused on the "product" from the perspective of the first purchaser, the boat owners[2], not the bareboat charterers.[3] *East River* did not focus on the downstream

2. The owners were subsidiaries of Seatrain. The ships had been constructed under contract between these subsidiaries of Seatrain and another Seatrain subsidiary, Shipbuilding. Shipbuilding had, in turn, contracted the design and manufacture of the ships to Delaval. Finally, the bareboat charterers of the ships were also Seatrain subsidiaries. *East River*, 476 U.S. at 859-860.

3. The Ninth Circuit may well also have misapprehended the teaching of *Shipco* and its application to this case. After this Court decided in *East River* that recovery in tort was not available where a component part of a vessel injured only itself, *id.*, 476 U.S. at 871, *Shipco* faced the next question. That is, could a component part manufacturer be held liable in tort for damage to the rest of the vessel caused by the defective component part? The Fifth Circuit answered "no," at least insofar as the component part (*e.g.*, the defective steering gear) had been sold to the original purchaser as an integral part of the completed vessel. *Shipco*, 825 F.2d at 929-930. The focus of *Shipco* was identification of the final, completed product the first purchaser bought from the manufacturer. That case has no bearing where, as here, the sale was a downstream sale between two private parties.

agreement between the owners of the vessels and the "second buyers" the bareboat charterers *until after it had determined that strict products liability law did not apply.*

Thus, in the first part of its decision, *East River* held that the plaintiffs had no products liability claims because only "economic damage," that is, damage to the product itself, was at issue. *East River*, 476 U.S. at 867. It made this determination only after it had decided what "the product" at issue was. To do this, the Court looked to what had been "*supplied by Delaval*," the *manufacturer*, to the owners of the ships at the time of delivery to the owners. Because "each turbine was *supplied by Delaval* [the manufacturer] as an integrated package," each turbine was "properly regarded as a single unit." *East River*, 476 U.S. at 867. As a result, because the "defectively designed turbine components [had] damaged only the turbine itself," "*there was no damage to 'other' property.*" *East River*, 476 U.S. at 867.

Once the Court had determined that the turbines were "the product" sold by Delaval to the owners, and that the turbines had damaged only themselves, the Court considered whether damage caused by the product to itself was recoverable in tort under a products liability theory. The Court examined the dispute between those courts that held that damage to the product itself was recoverable, and those that did not. *East River*, 476 U.S. at 868-871. Ultimately, the Court sided with California's Supreme Court decision in *Seely*, and held that damage to the product itself, in that case the turbine supplied by Delaval, was "economic damage" that could not be recovered in tort under a products liability theory. Therefore, such damage could not be recovered in tort by *either* the owners or the bareboat charterers. *East River*, 476 U.S. at 867, 875. Products liability law was simply the wrong instrument. The Court therefore proceeded to its analysis under warranty law.

D. The Ninth Circuit Confused *East River*'s Discussion of Warranty Law with its Discussion of Products Liability Law.

Because it did not distinguish between *East River's* discussion of products liability law and its discussion of warranty law, the Ninth Circuit erroneously imported this Court's discussion of warranty law into its analysis of Saratoga's product liability claims. The Ninth Circuit thus misunderstood this Court's discussion of "the benefit of the bargain" under warranty law. Its error is seen in the phrasing of its question:

> We must decide whether the "product" changed when Madruga added various components, including a skiff, seine and other miscellaneous parts, to the vessel and resold it to Saratoga Fishing.
>
> We are guided by the policies set forth in *East River*, where the Court stated that *the focus of the product* should be on the failure of the purchaser to receive the *benefit of its bargain.* Warranty and contract law are appropriate for this type of situation. Here, the purchaser is Saratoga Fishing and the object of its bargain was the M/V SARATOGA with the components already installed. Saratoga Fishing purchased the vessel "as is." Madruga made no "warranty or representation of vessel condition."

App., 34a (emphasis added).

The Ninth Circuit missed this Court's point. The "benefit of the bargain" and "as is" language in *East River* relied on by the Ninth Circuit, App., 34a, played no part in *East River's* products

liability analysis, but was only relevant to determine whether the charterers had any remedy in warranty. This analysis came only after this Court had decided that products liability law did not apply because the product, the turbines, had only injured themselves. *East River,* 476 U.S. at 867. This Court found that the bareboat charterers did not have any remedy *in warranty.* No warranties were available because there were no warranties given by the *owners* to the bareboat charterers. This Court took the parties at their word that the charterers did not have standing to sue on the manufacturer's warranties to the owners because those warranties had not been transferred to the bareboat charterers by the owners. *East River*, 476 U.S. at 875. At this point, this Court determined that, under contract law, there was "no reason to extricate the parties from their bargain." *East River,* 476 U.S. at 875. None of this discussion, contrary to the Ninth Circuit's reading, had *anything* to do with this Court's products liability analysis in *East River.*

E. *East River* Understood That "Economic Loss" Did Not Include Damage to Property Physically Separate From the Defective Product.

The Ninth Circuit misunderstood what *East River* meant by "economic loss" in the context of products liability law, and its relationship to "benefit of the bargain" under warranty law. App., 33a-34a. Agreeing with the California Supreme Court's decision in *Seely*, this Court understood "economic" damage to mean damages proximately caused when a product fails to perform as the purchaser expected:

> [S]ince by definition no person or other property is damaged, the resulting loss is purely economic. Even when the harm to the product itself occurs through an abrupt, accident-like event, *the resulting loss due to*

> *repair costs, decreased value, and lost profits* is essentially the failure of the purchaser to receive the benefit of its bargain—traditionally the core concern of contract law. See E. Farnsworth, Contracts Sec. 12.8, pp. 839-840 (1982).

East River, 476 U.S. at 870 (emphasis added).

Because it failed to distinguish this Court's discussion of product liability law from its discussion of warranty law in *East River*, the Ninth Circuit misapprehended *East River's* "benefit of the bargain" language as applying to damages caused by a defective product to other physically distinct property, regardless of whether the damaged property was manufactured, assembled and sold as a single finished product by the same seller. App., 34a-35a. The Ninth Circuit was wrong. "Economic loss" analysis focuses not on the damage to persons or property extrinsic to the product placed on the market by the manufacturer, but on unlimited expectation damages that could be proximately caused by a complex, defective product made up of several components that failed to perform the work expected. *East River*, 476 U.S. at 872-873. Allowing tort recovery against a Section 402A seller in situations where the complex product it sold damages only itself would, as *Seely* explained, swallow up the price/limitation-of-damages tradeoff allowed by warranty law. *East River* agreed with this assessment. *Id.*, 476 U.S. at 873 ("The manufacturer can restrict its liability, within limits, by disclaiming warranties or limiting remedies. *See* U.C.C. §§ 2-316, 2-719. In exchange, the purchaser pays less for the product.") The Court recognized the "need to keep products liability and contract law in separate spheres," *id.*, 476 U.S. at 870-871, and accordingly performed its products liability analysis independent of its warranty law analysis:

> Products liability grew out of a public policy judgment that people need more protection from dangerous products than is afforded by the law of warranty. See Seely v. White Motor Co., 63 Cal.2d 9, 15, 45 Cal.Rptr. 17, 21, 403 P.2d 145, 149 (1965). It is clear, however, that if this development were allowed to progress too far, contract law would drown in a sea of tort. See G. Gilmore, The Death of Contract 87-94 (1974). We must determine whether a commercial product injuring itself is the kind of harm against which public policy requires manufacturers to protect, *independent of any contractual obligation.*

East River, 476 U.S. at 866 (emphasis added).

Seely explained that warranty law could *not* shield a manufacturer from liability for defects in its product that create an "unreasonable risk of harm" to persons or property physically distinct from its product:

> The distinction that the law has drawn between tort recovery for physical injuries and warranty recovery for economic loss is not arbitrary and does not rest on the 'luck' of one plaintiff in having an accident causing physical injury. The distinction rests, rather, on an understanding of the nature of the responsibility a manufacturer must undertake in distributing his products. *He can appropriately be held liable for physical injuries caused by defects by requiring his goods to match a standard of safety defined in*

> *terms of conditions that create unreasonable risks of harm. He cannot be held for the level of performance of his products in the consumer's business unless he agrees that the product was designed to meet the consumer's demands.* A consumer should not be charged at the will of the manufacturer with bearing the risk of physical injury when he buys a product on the market. He can, however, be fairly charged with the risk that the product will not match his economic expectations unless the manufacturer agrees that it will.

Seely, 63 Cal. 2d at 18 (emphasis added). *East River* understood and agreed with the *Seely* analysis. *East River*, 476 U.S. at 871-872.

The price/limitation-of-commercial damages balance that is the "benefit of the bargain" between the manufacturer and the original purchaser under warranty law has no application where, as here, the product placed into the stream of commerce by a manufacturer results in harm to persons or property physically distinct from the product sold by the manufacturer. Contrary to the Ninth Circuit's reading, nothing in East River is "inconsistent" with holding a product manufacturer fully liable in tort for damages caused by its product to persons and property physically distinct from the product. App., 35a.

IV.

THE NINTH CIRCUIT'S DECISION PLACES IT IN DIRECT CONFLICT WITH THIS COURT, THE RESTATEMENT SECOND AND THE FIFTH CIRCUIT, WHICH LOOK TO WHAT THE 402A SELLER DELIVERED, NOT TO WHAT A DOWNSTREAM CONSUMER SOLD, TO DETERMINE THE "PRODUCT" SOLD BY THE 402A SELLER.

Except for the Ninth Circuit (if the Ninth Circuit's revised decision stands), the unanimous rule is that if a defective product proximately causes damages to a person's property that is physically distinct from the defective product, the injured party is entitled to tort damages against the 402A seller of the defective product. That physically distinct property will be treated as "other property" for *East River* damage limitation purposes. This rule is logical and true even if both the defective product and the damaged property came to the injured owner by way of a transaction involving a non-402A seller as in this case and as in *Nicor*. Hence, as the Fifth Circuit held in *Nicor*, "the finished vessel delivered by the *manufacturer to the purchaser* is the product — the object of the contract...." *Nicor*, 876 F.2d at 505 (emphasis added).[4]

---

4. This determination is also made explicit in the Tentative Draft of the Restatement (Third) of Torts, which specifically defines and discusses "economic loss" to property, finding "other property" to be property "exclusive of the product itself":

> § 6. Definition of "Harm to Persons or Property": Economic Loss
>
> For purposes of this Restatement the term "harm to persons or property" includes economic loss only when caused by harm to:

(Cont'd)

No court other than the Ninth Circuit has ever held that a downstream sales contract between two consumers determines the boundaries of what a manufacturer's "product" is for purposes of defining "other property." Numerous cases, on the other hand, clearly focus on the product placed on the market by the manufacturer. In *Nicor*, the court looked to the "the object of the contract" between the shipbuilder and the plaintiff buyer to determine that equipment placed on the vessel by the plaintiff was "other property." *Nicor*, 876 F.2d at 505. Likewise, in *Shipco*, 825 F.2d 925, the court denied recovery under *East River* against a manufacturer of a component part of a ship for economic damages caused by the part to the rest of the ship,

(Cont'd)

> (a) the plaintiff's person;
>
> (b) the person of another when harm to the other interferes with a legally protected interest of the plaintiff;
>
> (c) *the plaintiff's property other than the defective product itself.*

Restatement (Third) of Torts: Products Liability, § 6 (Tentative Draft No. 2, March 13, 1995) (emphasis added).

The Third Restatement then defines "other property":

> *'Other property,' in its most basic sense, may be defined as tangible items belonging to the product purchaser, exclusive of the product itself.* Numerous cases hold that where damage is done by a defective product to any tangible item which is *physically distinct* from it, the damage to the 'other property' may be recoverable in tort.

Restatement (Third) of Torts: Products Liability, § 6, cmt d at 189 (Tentative Draft No. 2, March 13, 1995) (emphasis added).

where the component was sold by the shipbuilder to the first purchaser as original equipment; that is, it was part of the complete ship sold by the manufacturer to the first consumer/purchaser.[5]

In *McDermott, Inc. v. Clyde Iron*, 979 F.2d 1068 (5th Cir. 1993), the court specifically stated how it determined the identity of "the product," and therefore, "other property": "The object of the [purchaser]-[manufacturer] contract was the manufacture, design, and sale of the crane *and that is the relevant inquiry.*" *McDermott*, 979 F.2d at 1077-1078 (emphasis added). *See also Mays Towing v. Universal Machinery Co.*, 755 F. Supp. 830 (S.D. IN. 1990) (damage to new engines placed in vessel were covered by warranty law; but damage to vessel caused by the defective engines was recoverable as "other property" under products liability law.)

5. In *Shipco* the court recognized that the question before it was, "what is the product?" *Id.*, 825 F.2d at 928. To answer this question, it asked,

> what is the object of the contract or bargain that governs the rights of the parties? The completed vessels were obviously the objects of the contract. Shipco (footnote omitted) did not bargain separately for individual components of each vessel. We are persuaded that those same vessels that were the object of the contract must be considered "the product" rather than the individual components that make up the vessels.

Id., 825 F.2d at 928. The point was that "Avondale (the manufacturer) sold the completed vessels to Shipco." *Id.*, 825 F.2d at 929. *Shipco's* analysis was the equivalent of asking, "what did General Motors sell the consumer of a new Oldsmobile?" That case had absolutely nothing to do with the subsequent question, which the Ninth Circuit answered incorrectly, "if the first consumer sells the Oldsmobile to a second consumer a few years later, do the box of toys in the trunk, the child seat and the tool box the first owner sold with it become part of GM's "product" for product liability purposes?

It is undisputed that the skiff, net, fuel, spare parts, speed boats and miscellaneous equipment added to M/V SARATOGA by Madruga and sold to Saratoga were *not* sold by Respondents at any time and are physically distinct individual products in their own right sold by other manufacturers after Martinac and Marco sold the boat to Madruga. App., 6a. Under fundamental products liability law, because Martinac and Marco did not place these items into the stream of commerce, they cannot be considered Respondents' "product" for purposes of strict products liability. They are then, by definition, "other property" recoverable by Saratoga.

V.

THE NINTH CIRCUIT'S RULING CREATES ANOMALIES IN THE LAW.

The Ninth Circuit opinion will create chaos in maritime law if given effect. For example, if a first purchaser keeps a vessel for 20 years, adding many pieces of equipment to the ship during that period, the manufacturer clearly can be held liable in tort should this "other property" be damaged or destroyed by a defect in the ship. Thus, the manufacturer's liability would increase every time the vessel is modified, so long as it is owned by the first purchaser. Yet if the first purchaser sells the ship and all its additions to purchaser two after owning it for 20 years and one day, the manufacturer's liability for the "other property" *immediately* springs back to zero. As a result, the manufacturer's liability for precisely the same damage caused by precisely the same defect would turn on whether, by luck, the ship was sold the day before the defect manifested itself. *See* App., 41a, Noonan, J., concurring and dissenting.[6]

6. The district court also rejected this outcome as irrational. App., 176a.

Even more troublesome would be the suit in which a vessel manufacturer is sued for a personal injury caused by a defective piece of "other property" (*e.g.*, a skiff) that the manufacturer did not sell with the vessel. The plaintiffs would claim, under the Ninth Circuit's reasoning, that the defective "other property" became part of the manufacturer's "product" when the vessel was sold to a second buyer. The manufacturer could be held liable for damages caused them by this "other property."

Similarly, the manufacturer of a skiff that, because of a defective steering mechanism, when released turns and collides with the vessel from which it was released, will claim that it cannot be held liable for damage to the ship because the skiff became part of the vessel manufacturer's "product" when the vessel, with the skiff, was sold to a second buyer.[7] Therefore, the defense will contend, the "product" only injured itself, and because the skiff manufacturer did not provide the buyer with a warranty for such "economic damage," it cannot be held liable for the damage to the vessel. Similarly, because the vessel manufacturer did not provide a warranty for the skiff (after all, it was not even part of the vessel when it was sold), it too will have no liability for the damage.

7. This result would, of course, go far past *Shipco*, which decided only that the manufacturer of the steering mechanism that was part of the vessel when it was originally sold to the first purchaser by the manufacturer, could not be held liable for damages that mechanism caused to other parts of the vessel. *Shipco*, 825 F.2d at 930-931. In the example above, under the Ninth Circuit's reasoning, the subsequently added equipment would become part of the manufacturer's "product," for which the manufacturer presumably could be sued. App., 34a-35a.

CONCLUSION

The Ninth Circuit's Second Revised Opinion undermines and eviscerates fundamental tenets of products liability law. It places the Ninth Circuit in direct conflict with this Court's decision in *East River* and decisions of the Fifth Circuit. It places the Ninth Circuit in direct conflict with Section 402A of the Restatement (Second) of Torts. Only this Court now has the power to restore the uniformity and balance in maritime product liability law envisioned and required by *East River.* Saratoga respectfully requests that this Court grant its petition for a writ of certiorari.

Dated: April 29, 1996

Respectfully submitted,

KEITH ZAKARIN
Counsel of Record
RICE FOWLER BOOTH &
BANNING
Attorneys for Petitioner
402 West Broadway, Suite 850
San Diego, CA 92101
(619) 230-0030

APPENDIX A — NINTH CIRCUIT COURT OF APPEALS ORDER DENYING PETITION FOR REHEARING FILED JANUARY 30, 1996

NOT FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 93-56344
D.C. No. CV-87-01691-JMF

SARATOGA FISHING CO.,

Plaintiff-Appellee,

v.

MARCO SEATTLE INC.,

Defendant-Appellant,

and

J.M. MARTINAC & CO.; CATERPILLAR TRACTOR CO.; SOUTHWEST MARINE HARDWARE, INC.,

Defendants.

No. 93-56368
D.C. No. CV-87-01691-JMF

SARATOGA FISHING CO.,

Plaintiff-Appellant,

v.

Appendix A

MARCO SEATTLE INC.; SOUTHWEST MARINE HARDWARE, INC.; CATERPILLAR TRACTOR CO.; J.M. MARTINAC & CO.,

Defendants-Appellees.

No. 93-56501
D.C. No. CV-87-01691-JMF

SARATOGA FISHING CO.,

Plaintiff-Appellee,

v.

J.M. MARTINAC & CO.,

Defendant-Appellant.

ORDER

Before: BEEZER and NOONAN, Circuit Judges, and EZRA, District Judge.*

A majority of the panel has voted to deny Saratoga Fishing Co.'s petition for rehearing filed November 16, 1995. Judge Beezer votes to reject the suggestion for rehearing en banc and Judge Ezra so recommends. Judge Noonan would grant the petition for rehearing and accept the suggestion for rehearing en banc.

---

* The Honorable David Alan Ezra, United States District Judge for the District of Hawaii, sitting by designation.

Appendix A

The full court has been advised of the suggestion for rehearing en banc and no judge in active service has requested a vote to rehear the matter en banc. Fed. R. App. P. 35.

The petition for rehearing is DENIED and the suggestion for rehearing en banc is REJECTED.

APPENDIX B — NINTH CIRCUIT COURT OF APPEALS ORDER AND OPINION AFFIRMING IN PART, REVERSING IN PART, AND REMANDING THE MATTER TO THE DISTRICT COURT FILED OCTOBER 26, 1995

FOR PUBLICATION

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

SARATOGA FISHING CO., *Plaintiff-Appellee,* v. MARCO SEATTLE INC., *Defendant-Appellant,* and J.M. MARTINAC & CO.; CATERPILLAR TRACTOR CO.; SOUTHWEST MARINE HARDWARE, INC., *Defendants.*	No. 93-56344 D.C. No. CV-87-01691-JMF
SARATOGA FISHING CO., *Plaintiff-Appellant,* v. MARCO SEATTLE INC.; SOUTHWEST MARINE HARDWARE, INC.; CATERPILLAR TRACTOR CO.; J.M. MARTINAC & CO., *Defendants-Appellees.*	No. 93-56368 D.C. No. CV-87-01691-JMF

Appendix B

SARATOGA FISHING CO., *Plaintiff-Appellee,* v. J.M. MARTINAC & CO., *Defendant-Appellant.*	No. 93-56501 D.C. No. CV-87-01691-JMF ORDER AND OPINION

Appeals from the United States District Court
for the Southern District of California
James M. Fitzgerald, Chief Judge, Presiding

Argued and Submitted
February 8, 1995—Pasadena, California

Filed April 25, 1995
Withdrawn August 4, 1995
Filed August 4, 1995
Withdrawn October 26, 1995
Filed October 26, 1995

Before: Robert R. Beezer and John T. Noonan, Jr., Circuit Judges, and David Alan Ezra, District Judge.*

Opinion by Judge Beezer; Parital Concurrence and Partial Dissent by Judge Noonan

SUMMARY

Admiralty and Marine/Torts/Products Liability

*The Honorable David Alan Ezra, United States District Judge for the District of Hawaii, sitting by designation.

Appendix B

The court of appeals affirmed in part a district court judgment, reversed in part, and remanded. The court held that the district court correctly applied the "risk-utility" test in a design defect product liability action against a shipbuilder and the designer of the vessel's hydraulic system.

The fishing vessel M/V SARATOGA was designed and built by appellant J.M. Martinac & Co. for Joseph Madruga. During the construction process, Martinac contracted with appellant Marco Seattle Inc. to design a hydraulic system. The system was installed by Martinac and inspected by Marco.

The vessel's captain, Manuel Vargas, took the vessel to Panama, where the vessel was outfitted with a seine and other fishing equipment. The vessel then commenced tuna fishing operations. The vessel was purchased from Madruga by appellee Saratoga Fishing Co. As captain, Vargas ordered a series of modifications to various machinery and equipment: the size of the seine was increased; a larger boom and power block were installed; larger cartridges were installed in the pumps; and a 100-horsepower electric drive and pump were installed to increase power to the hydraulic system.

The Chief Engineer noticed that the hydraulic system was experiencing failures, but Vargas continued to seek increased power to the hydraulic system. An Assistant Engineer observed worn out pump cartridges and an overloaded hydraulic system. A new Chief Engineer noticed more problems with the hydraulic system. Repair work was completed in Panama. The Chief Engineer later observed a hydraulic hose seeping hydraulic fluid, but Vargas did not shut down the hydraulic system. A hydraulic hose pulled out of its coupling and hydraulic fluid sprayed up and fell back onto the hot surface of the turbocharger. The fluid ignited, and a fire spread throughout the vessel. The SARATOGA sank.

Appendix B

Saratoga Fishing brought suit in the district court against Martinac and Marco within the court's admiralty jurisdiction seeking recovery for property losses. Saratoga Fishing argued that the hydraulic system was defectively designed, and sought recovery under theories of strict liability, negligence and failure to warn. Saratoga Fishing offered the expert testimony of a naval architect, who testified that the Marco hydraulic drive system incorporated an unsafe design. In the architect's opinion, the hydraulic hoses were located too close to the hot surfaces of the engine and turbocharger. The architect noted that hydraulic hoses and couplings are prone to failure for a variety of reasons, and that the designer of the hydraulic system should have taken preventive measures such as relocating the hoses elsewhere, installing an electric instead of a diesel motor to reduce the risk of a fire developing from leaking hydraulic fluid, or isolating the hoses from the engine and turbocharger by the use of shielding.

Marco and Martinac argued that the vessel's design was not defective, that Saratoga Fishing failed to maintain the fire suppression system or the hydraulic hoses, and that Saratoga Fishing had substantially altered and misused the hydraulic system. A marine architect testified that the hydraulic system on board the vessel met well-established marine practice, and that, in his opinion, the system was not operating properly because of the modifications made by Saratoga Fishing.

The district court concluded that Marco and Martinac were strictly liable for the loss of the SARATOGA. The court found that the hydraulic system was defectively designed despite the fact that it met established marine practices, and that the placement of the hydraulic hoses in close proximity to the engine and turbocharger presented a known serious risk of fire. The court found that feasible design changes, such as the placement of a shield to isolate the hydraulic hoses from

the engine and turbocharger, would have reduced the risk. The court found that the modifications made by Saratoga Fishing did not alter the chain of causation because they did not affect the design. The court applied the "risk-utility" test, examining the risk and utility of the design along with the feasibility of alternative designs.

The district court found, however, that Saratoga Fishing was at fault due to its poor maintenance of the hydraulic system, its overuse of the system, and its failure to recognize the signs of imminent failure of the system. Saratoga Fishing's comparative fault reduced its recovery by two-thirds. The award of damages to Saratoga Fishing included losses of the tuna catch, seine, skiff, fuel, equipment, the crews' personal losses, the cost of the rescue, and Vargas' cash. The award did not include the loss of any replacement parts that Saratoga Fishing installed on the vessel or the loss of the vessel's hull. The court awarded prejudgment interest and additional interest to Saratoga Fishing until the date of the final judgment. Marco and Martinac appealed.

[1] The law of products liability, including strict liability, is recognized as part of general maritime law. [2] The Ninth Circuit has held a commercial seller of a maritime product strictly liable under Restatement (Second) of Torts § 402A in a factually similar case involving a presumably sophisticated commercial buyer. [3] In addition, a plaintiff's misuse or alteration of a product does not relate to whether the manufacturer or seller had a duty to the consumer or user. [4] The alterations made to the hydraulic system by Saratoga Fishing did not substantially alter the design of the system.

[5] In regard to the determination of whether the product was defectively designed, the language of § 402A neither compelled nor precluded the application of either the risk-

utility test or the "consumer expectations" test. [6] The district court was correct regarding the appropriateness of applying the risk-utility test in this case. If the consumer expectations test had been applied, the danger posed by the placement of the hoses of the hydraulic system in close proximity to the hot engine and turbocharger surfaces would likely have been deemed open and obvious. The risk-utility test provided a superior yardstick of whether the product was unreasonably dangerous or defective. [7] A focus on the design's benefits, risks, and feasible alternatives was a better approach to examining an alleged design defect. [8] However, the approval of an application of the risk-utility test in this case did not necessarily preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test.

[9] The district court examined the risk from the design of the hydraulic system and found it to be extremely high. [10] The district court did not rely on the mere technical possibility of a safer design. [11] Due deference had to be given to the district court's consideration of the experts' testimony. Thus, the district court correctly applied the risk-utility test in finding the design of the hydraulic system defective.

[12] The district court did not find that Saratoga Fishing's misuse and alteration of the hydraulic system amounted to a superseding cause of the accident. [13] The alterations in the hydraulic system did not alter the design to the point where they superseded the design as a proximate cause of the fire.

[14] The poor maintenance of the hydraulic system, the modifications to the system, and the use of the system known to have a defective hose all contributed to the fire that caused the sinking of the vessel. Thus, the apportionment of two-thirds liability to Saratoga Fishing was not disturbed.

[15] A cause of action for damages in a products liability claim in admiralty is available only for injury to persons or "other property." [16] The "product" in this case was the vessel that was delivered to Saratoga Fishing. Because it included the skiff, net, fuel, spare parts, and miscellaneous equipment, those items were part of the product and were not recoverable in a tort action as "other property." [17] The tuna catch was not an economic loss; it was a loss of other property. Thus, the district court did not abuse its discretion in awarding damages for the tuna catch. [18] Because a product may have any number of components replaced with spare parts in the ordinary course of events, viewing such parts as "other property" would lead to absurd results. [19] Permitting recovery from Marco for the vessel's hull would undermine relevant policy.

[20] There was insufficient reason to disturb the district court's award of prejudgment interest.

Circuit Judge Noonan concurred and dissented, concurring in the majority's opinion, except as to its exclusion of damages for the skiff, seine net, fuel, spare parts, and other miscellaneous equipment sold by Madruga to Saratoga Fishing as part of the sale of the vessel.

COUNSEL

Daniel B. MacLeod, Alford & MacLeod, San Diego, California, for defendant-appellant-cross-appellee Marco Seattle, Inc.

Duncan B. Koler, Walton, Ottesen, Meads & Koler, San Diego, California, for defendant-appellant-cross-appellee J.M. Martinac & Company.

Keith Zakarin, Pillsbury, Madison & Sutro, San Diego, California, for plaintiff-appellee-cross-appellant Saratoga Fishing Company.

ORDER

The opinion filed August 4, 1995, appearing at 63 F.3d 792 (1995), is hereby withdrawn.

OPINION

BEEZER, Circuit Judge:

This products liability action in admiralty arose following an engine room fire that caused the flooding and sinking of the fishing vessel M/V SARATOGA. The district court concluded that J.M. Martinac & Company ("Martinac"), the shipbuilder, and Marco Seattle, Inc. ("Marco"), the designer of the vessel's hydraulic system, were strictly liable to Saratoga Fishing Company ("Saratoga Fishing"), the vessel owner, for damages to "other property" on the vessel because the fire and subsequent loss resulted from a defectively designed hydraulic system. The district court reduced the damages award by two-thirds, however, because of Saratoga Fishing's comparative fault in maintaining and operating that system. Both sides appeal the district court's determinations on liability and damages.[1]

We have jurisdiction over these timely appeals pursuant to 28 U.S.C. § 1291. Because we agree with all but one facet of the district court's resolution of this action, we affirm in part, reverse in part and remand.

[1]Two other defendants, Caterpillar Tractor Company and Southwest Marine Hardware, Inc., are not parties to this appeal.

Appendix B

I

We retrace the fateful path of the fishing vessel M/V SARATOGA ("SARATOGA"). The vessel was designed and built in 1971 by Martinac in its Tacoma, Washington shipyards for Joseph Madruga. During the construction process, Martinac, after consulting with Madruga, contracted with Marco to design a hydraulic system. The system was installed by Martinac and inspected by Marco.

The SARATOGA's hydraulic system included pumps, pump drives, control valves, hoses and pressure gauges all connected to a 190-horsepower Caterpillar D333 engine and turbocharger. The system operated machinery and equipment such as a power block, a boom and winches, which were necessary to use the seine (net) for tuna fishing operations. Hydraulic fluid was pumped through the system to operate the deck machinery. The fluid exited the pumps through five rubber hoses attached to the pump drive by metal couplings. The hoses rose vertically from the pump to the overhead, passing near the engine and turbocharger.

The completed vessel was launched in 1972. Its captain, Manuel Vargas, took the vessel from San Diego, where it had undergone various sea trials, to Panama where she was outfitted with a seine and other fishing equipment. The SARATOGA then commenced tuna fishing operations.

In 1974, the Manuel S. Vargas, Jr. Corporation, which was principally owned by Vargas and later changed its name to Saratoga Fishing, purchased the SARATOGA from Madruga. At the time of sale, the vessel was equipped with five speedboats, a purse skiff, a seine, and various electronic equipment. Vargas continued to serve as captain until 1979.

Appendix B

When Vargas returned to the SARATOGA as captain in 1984, the condition of the vessel had deteriorated. While overseeing a refurbishing of the vessel, Vargas ordered a series of modifications to various machinery and equipment: the size of the seine was increased; a larger boom was installed; a larger power block was installed; larger cartridges were installed in the pumps; and a 100-horsepower electric drive and pump were installed to increase power to the hydraulic system above that of the original equipment.

A new Chief Engineer joined the vessel in 1984. Wesley Ogilvie noticed on his first fishing trip that the hydraulic system was experiencing failures, such as leaking valves and breaking hoses. Nevertheless, Captain Vargas continued to seek increased power to the hydraulic system to quicken the speed at which the seine could be pursed. Assistant Engineer Lewis Jorge joined the crew in 1985, and observed worn out pump cartridges and an overloaded hydraulic system. In late 1985, Ogilvie was replaced as Chief Engineer by Mark Nielson, who noticed more problems with the hydraulic system. Hydraulic hoses needed replacement, winches were leaking hydraulic fluid, and the temperature of the hydraulic fluid was abnormally high.

Various repair work was completed on the SARATOGA when she docked in Panama late in 1985, including the replacement of seals in the hydraulic system and pump cartridges. Workers also repaired damage to the turbocharger on the main engine. On January 8, 1986, the SARATOGA departed Panama to fish for tuna near the Galiapagos Islands in the Pacific Ocean.

On the afternoon of January 16, Chief Engineer Nielson observed one hydraulic hose seeping hydraulic fluid at the coupling attaching the hose to the pump. Although Captain Vargas arranged to rendezvous with another vessel to obtain a necessary tool to manufacture a replacement hose, Vargas did not shut down the hydraulic system. Instead, Vargas utilized the system to catch more tuna late that afternoon.

A short time later, Lewis Jorge entered the engine room and observed that a hydraulic hose was "pulsating." As Jorge watched, the hose pulled out of its coupling and hydraulic fluid sprayed up from the coupling and fell back onto the hot surface of the turbocharger. The fluid ignited causing an immediate conflagration in the engine room. Jorge and Nielson attempted to extinguish the fire, but their efforts were unsuccessful.

The fire quickly spread throughout the SARATOGA, and Captain Vargas ordered the crew to abandon ship. The crew left in a skiff, and were soon rescued by another vessel. No crew member suffered serious injury. Unfortunately, the SARATOGA sank.[2]

Property losses included, in addition to the loss of the vessel, all of the fishing equipment, fuel, a substantial tuna catch stored in the vessel, crew members' personal property losses, and $16,000 in cash that Captain Vargas had placed in the vessel's safe.

---

[2]Although the district court found that the cause of the SARATOGA's sinking was the flooding that occurred as a consequence of the fire, it was unable to determine exactly how and why the flooding occurred. The district court determined that resolving that question was not necessary to its disposition. We agree.

Saratoga Fishing brought the instant lawsuit in district court against Martinac and Marco within the court's admiralty jurisdiction seeking recovery for property losses. *See* 28 U.S.C. § 1333. The court conducted a 14-day trial in which it heard testimony from a variety of expert witnesses and considered a substantial amount of evidence.

At trial, Saratoga Fishing argued that the hydraulic system was defectively designed. It sought recovery under theories of strict liability, negligence, and failure to warn.

Saratoga Fishing offered, among other witnesses, the expert testimony of David Saveker, a naval architect. Saveker testified that the Marco hydraulic drive system incorporated an unsafe design. The hydraulic hoses were, in Saveker's opinion, located too close to the hot surfaces of the engine and turbocharger. As hydraulic hoses and couplings are prone to fail for a variety of reasons, Saveker noted, the designer of the hydraulic system should have taken preventive measures such as relocating the hoses elsewhere, installing an electric instead of a diesel motor to reduce the risk of a fire developing from leaking hydraulic fluid, or isolating the hoses from the engine and turbocharger by the use of shielding. Such shielding would have "screen[ed] out a large percentage of the probability of an immediate torch" from the leaking hydraulic fluid. Saveker testified that the system was "a bad accident waiting to happen."

Marco and Martinac argued that the vessel's design was not defective, that Saratoga Fishing had failed to maintain the fire suppression system or the hydraulic hoses, and that Saratoga Fishing had substantially altered and misused the hydraulic system.

Larry Grief, a marine architect, testified as an expert wit-

ness for Marco and Martinac. He stated that the hydraulic system on board the SARATOGA met well-established marine practice and was similar to those on almost every vessel he had been aboard. The hydraulic hoses, Grief noted, were designed with a safety margin of 6 to 1 over standard operating pressures. In Grief's opinion, the hydraulic system was not operating properly because of the modifications made by Saratoga Fishing. The addition of a 100-horsepower electric drive caused the hydraulic fluid to pass through the system at a higher velocity, leading to a corresponding increase in the temperature of the hydraulic fluid, which in turn caused rapid deterioration. Furthermore, the larger equipment (seine, boom, and power block) installed by Saratoga Fishing required more hydraulic power, but the installation was not accompanied by any modifications in the hydraulic hoses.

The district court concluded that Marco and Martinac were strictly liable for the loss of the SARATOGA. The court found that the hydraulic system was defectively designed despite the fact that it met established marine practices. The placement of the hydraulic hoses in close proximity to the engine and turbocharger presented a known serious risk of fire and, the district court found, feasible design changes, such as the placement of a shield or barrier to isolate the hydraulic hoses from the engine and turbocharger, would have reduced the risk. The modifications made by Saratoga Fishing did not alter the chain of causation because they did not affect the design.

The court also found, however, that Saratoga Fishing was at fault due to its poor maintenance of the hydraulic system, its overuse of the system, and its failure to recognize the signs of imminent failure of the system. Saratoga Fishing's comparative fault reduced its recovery by two-thirds.

In a later ruling, the district court awarded damages to Saratoga Fishing in the amount of $452,326, one-third of the sum it determined to be Saratoga Fishing's total damages. The award included losses of the tuna catch, seine, skiff, fuel, equipment, the crews' personal losses, the cost of the rescue, and Captain Vargas' cash.

Not included in the award was the loss of any replacement parts that Saratoga Fishing installed on the vessel. The award also did not include the loss of the vessel's hull, which the trial court had decided pretrial was not recoverable from either defendant in an admiralty products liability action.

The court awarded prejudgment interest, which raised the total award to Saratoga Fishing to $734,940.38. Finally, the court awarded additional interest to Saratoga Fishing until the date of the final judgment at the rate of $153.09 per day.

II

We review the admiralty trial court's findings of fact for clear error, and its conclusions of law *de novo*. *Havens v. F/T Polar Mist*, 996 F.2d 215, 217 (9th Cir. 1993). The existence and extent of a duty are questions of law reviewed *de novo*, while proximate cause and whether such a duty has been breached are questions of fact reviewed for clear error. *Martinez v. Korea Shipping Corp.*, 903 F.2d 606, 609 (9th Cir. 1990).

We review *de novo* the legal conclusion that damages are available. *United States v. Timberland Paving & Constr. Co.*, 745 F.2d 595, 599 (9th Cir. 1984) ("[w]e review questions of law de novo"). Finally, we review for clear error a trial court's factual findings in support of an award for damages. *Bergen v. F/V St. Patrick*, 816 F.2d 1345, 1347 (9th Cir. 1987), *cert. denied*, 493 U.S. 871 (1989).

III

[1] Saratoga's claims fall within the admiralty jurisdiction, as they arose on the high seas. 28 U.S.C. § 1333; *see Jerome B. Grubart, Inc. v. Great Lakes Dredge & Dock Co.*, 115 S. Ct. 1043, 1047 (1995). We apply, as the district court did, substantive admiralty law, which, absent a federal statute, is the general maritime law. *East River S.S. Corp. v. Transamerica Delaval Inc.*, 476 U.S. 858, 864 (1986). The law of products liability, including strict liability, is recognized as part of the general maritime law. *Id.* at 865; *Pan-Alaska Fisheries, Inc. v. Marine Constr. & Design Co.*, 565 F.2d 1129, 1135 (9th Cir. 1977).

In holding that a strict products liability action would lie in admiralty, we adopted the Restatement (Second) of Torts § 402A (1965) as "the law of products liability in this circuit" because it was "the best and most widely-accepted expression of the theory of strict products liability." *Pan-Alaska*, 565 F.2d at 1135. Section 402A provides as follows:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although

> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Under the doctrine of strict products liability, manufacturers and sellers of products are held liable because society considers them better able than individuals to bear the costs of injuries and damage resulting from defective products. *See* **W. Page Keeton et al., Prosser and Keeton on Torts** § 98, at 692-93 (5th ed. 1984) [hereinafter **Prosser & Keeton**] (manufacturers and sellers "have the capacity to distribute the losses of the few among the many who purchase the products"); *Greenman v. Yuba Power Prods., Inc.*, 59 Cal.2d 57, 377 P.2d 897 (1963); **Thomas J. Schoenbaum, Admiralty and Maritime Law** § 5-6, at 177 (1994) (policies underlying strict liability apply in admiralty).

A

Martinac and Marco argue, based on two theories, that the district court erred in concluding that they owed any duty to Saratoga Fishing. They contend first that Saratoga Fishing was a sophisticated commercial buyer and that imposition of a strict products liability duty in this context is unwarranted. Next, Martinac and Marco argue that Saratoga Fishing failed to establish that the vessel, specifically the hydraulic system, was without substantial change. Thus, they contend that under Restatement section 402A(1)(b), they had no duty to protect

Saratoga Fishing from a defective condition unreasonably dangerous to it.[3]

Marco and Martinac raise interesting policy arguments for why commercial sellers should not owe a strict products liability duty to sophisticated commercial buyers of products such as fishing vessels. Many of the concerns animating strict products liability, including the ability of manufacturers and sellers to better absorb the costs of defective products, do not necessarily support strict products liability in this context. Indeed, private insurance on the part of the vessel's owner would, it is argued, provide a more effective economic allocation of risk. We have also recognized that section 402A of the Restatement "should be applied only when the purposes it seeks to serve dictate its application." *McKay v. Rockwell Int'l Corp.* 704 F.2d 444, 447 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

[2] The question is not, however, an open one in this circuit. We have held a commercial seller of a maritime product strictly liable under Restatement section 402A in a factually similar case involving a presumably sophisticated commercial buyer. *Pan-Alaska*, 565 F.2d at 1134-37; *see also East River*, 476 U.S. 864-66, 871 (discussing application of strict products liability to "manufacturer in a commercial relationship"). Although we have not specifically considered the policy arguments raised here, we have yet to create an exception to strict products liability for certain sellers based on the commercial

[3]Marco and Martinac also argue that the trial court erroneously found that they had a duty to provide a "safe vessel." We agree that their duty was to provide a vessel that was not unreasonably dangerous to the user. In our judgment, however, the district court's choice of words in one finding does not undermine the propriety of its analysis of the appropriate nature of Marco and Martinac's duty.

nature of the sale.[4] *See* Paul N. Wonacott, *Products Liabilities of Shipbuilders and Repairers*, 62 Tulane L. Rev. 465, 469 (1988) (liability for a defective product under section 402A attaches in admiralty regardless whether "the accident-causing product is a structure uniquely designed to a particular owner's specifications"). Because many maritime transactions occur between commercial sellers and sophisticated buyers, the position advocated by Marco and Martinac would tend to eliminate what we have already accepted—that strict products liability is a part of the general maritime law.

Marco and Martinac's other argument regarding strict products liability duty is also unavailing. They misperceive the meaning of "substantial change" as defined by section 402A(1)(b). The Restatement section 402A provides that the product must "reach the user or consumer without substantial change in the condition in which it is sold." Thus, if a manufacturer's product is altered by a seller or other intermediary, the manufacturer might be immune from strict liability. *See* Restatement § 402A cmt. p. Once the product has reached the "user or consumer," however, that element has been satisfied. *See Emerson G.M. Diesel, Inc. v. Alaskan Enter.*, 732 F.2d 1468, 1475 (9th Cir. 1984) (product must not be "altered or changed when it reached the consumer"), *overruled in part on other grounds by East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858 (1986).

[4]In *McKay*, 704 F.2d at 447 n.4, we recognized those limited circumstances when strict products liability does not apply. They include unavoidably unsafe products, used products and services. We also added to that list in *McKay* that only in limited circumstances should a manufacturer be held strictly liable in tort for injuries to a service member in active duty caused by a design defect in military equipment. *Id.* at 447-48.

[3] Any misuse or fault by the user or consumer could and indeed, in this case, did reduce the plaintiff's recovery. Restatement § 402A cmt. n; *Pan-Alaska*, 565 F.2d at 1138 (comparative fault concepts can be applied to strict products liability). Whether the plaintiff misused the product, or significantly altered the product so as to become an intervening, superseding proximate cause of the resulting loss may even relieve the manufacturer or seller from liability altogether, but that misuse or alteration does not relate to whether the manufacturer or seller had a duty to the consumer or user. The duty exists if the product was in a defective condition at the time the consumer or user obtained the product. Because the hydraulic system retained the same design when Saratoga Fishing acquired the product from Madruga in 1974 as it did when Marco and Martinac installed the system, Marco and Martinac owe a duty to Saratoga Fishing regarding any design defect.

[4] In any case, the alterations made to the hydraulic system by Saratoga Fishing did not substantially alter the design of the system, which is what the district court found to be defective. The design of the system was the same on the day of the vessel's loss as it was when the SARATOGA left the shipyard.

B

Martinac and Marco argue that the district court erred in finding the design of the hydraulic system to be defective. They contend that the district court improperly applied a risk-utility test instead of a consumer or user expectations test to determine if the hydraulic system was defectively designed. Finally, Marco and Martinac argue, the district court misapplied the risk-utility test. We disagree with each of these contentions.

Admiralty courts use two methods to determine whether a product is defectively designed. The first method, drawn from Restatement section 402A comment i, provides that a product is defective if it is "dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." This is the consumer expectations test. *See* Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton** § 99, at 698.

Although utilized by many courts, this test has come under criticism because of several shortcomings. First, it allows a manufacturer or seller to escape liability when the unreasonable danger is open and obvious. *See* **Prosser & Keeton** § 99, at 698-99; **M. Stuart Madden, Products Liability** § 6.7, at 213-14 (1988). Second, it is unpredictable in application. *See* **Prosser & Keeton** § 99, at 699. Because of the weaknesses of this test, some courts have sought an alternative way to determine whether a product was defectively designed.

A second test evolved from Judge Learned Hand's balancing test in a negligence case, *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947). The risk-utility balancing test, in the context of a strict products liability action, weighs the utility of the product against the gravity of the danger. If, after considering the utility of the product, the economic and practical feasibility of alternative designs, and the gravity and likelihood of the potential harm, the factfinder determines that the risk outweighs the utility, the product is deemed defective or unreasonably dangerous.[6] *See Pavlides v.*

[6] In a design defect case, the terms "defective condition" and "unreasonably dangerous" arguably share a common meaning. *See Hagans v. Oliver Mach. Co.*, 576 F.2d 97, 99 n.4 (5th Cir. 1978) (stating that "[a]s used in the Restatement" the two terms are synonymous); *see also* Carl T. Bogus, *Pistols, Politics & Products Liability*, 59 U. Cin. L.

Galveston Yacht Basin, Inc., 727 F.2d 330, 337 (5th Cir. 1984) (applying risk-utility test in admiralty case); *Borel v. Fibreboard Paper Prods. Corp.*, 493 F.2d 1076, 1078 (5th Cir. 1973) (nonadmiralty case), *cert. denied*, 419 U.S. 869 (1974); Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton § 99**, at 699-700.

[5] A recent law review article noted that "[a]dmiralty decisions reveal that no predictable fact pattern or particular liability theory will dictate application of any one test; so it is not believed possible to identify a consistently preferred admiralty standard." Wonacott, *Shipbuilder Liability*, at 471. The language of section 402A neither compels nor precludes the application of either test; it merely provides for an examination of whether a product is unreasonably dangerous.

We have not indicated which test or tests should be applied in admiralty cases in this circuit.[6] The district court rejected the pure application of the "so-called consumer's expectations" test in comments g and i of Restatement section 402A. Instead, the court applied the risk-utility test, citing the

Rev. 1103, 1107-08 (1991) (arguing that in design defect cases, unreasonable danger is synonymous with defective condition); David P. Griffith, Note, *Products Liability—Negligence Presumed: An Evolution*, 67 Tex. L. Rev. 851, 859-60, 860 n.50 (1989) (citing sources supporting proposition that "defective" and "unreasonably dangerous" are synonymous and will lead to the same conclusion in design defect cases). Although we need not hold that the two terms will be synonymous in all cases, we use the terms interchangeably here. In other words, under either the consumer expectations test or the risk-utility test, a product that is deemed unreasonably dangerous will also be deemed to be in a defective condition. Conversely, a product in a defective condition must also be unreasonably dangerous.

[6]Marco and Martinac rely on *McCune v. F. Alioto Fish Co.*, 597 F.2d 1244 (9th Cir. 1979) and *Complaint of Diehl*, 610 F. Supp. 223 (Idaho

Fifth Circuit's decision in *Pavlides*. The district court proceeded to examine the risk and utility of the design along with the feasibility of alternative designs.

[6] We agree with the district court regarding the appropriateness of applying the risk-utility test in this case. If the consumer expectations test had been applied, the danger posed by the placement of the hoses of the hydraulic system in close proximity to the hot engine and turbocharger surfaces would likely be deemed open and obvious, especially to a purchaser or user of a fishing vessel. We are not satisfied with the possibility that a product with a design having high risk and limited utility, and a design that has other feasible alternatives, could be found not to be unreasonably dangerous or defective merely because a consumer, using the product in a foreseeable way, could recognize the danger.[7] As the district court correctly recognized, the risk-utility test provides a superior yardstick of whether a product is unreasonably dangerous or defective.

[7] We note that a preliminary draft of the Restatement (Third) of Torts by the reporters for the American Law Institute relies on a risk-utility analysis for deciding design defect cases. *See* Restatement (Third) of Torts: Products Liability § 2 (Tentative Draft No. 1, 1994). The tentative draft divides

1985), to support their argument that only a consumer expectations test should be applied in admiralty. Neither case supports that proposition. *McCune* merely affirmed, without discussion, a district court's finding that a product was not defective. *Diehl*, which is a district court decision, did apply a consumer expectations test in the context of an admiralty case, but it did not discuss, and it certainly did not preclude, the applicability of other tests.

[7]Neither party argued that the product in this case was an unavoidably unsafe product. *See* Restatement § 402A cmt. k.

defective product cases into three categories: manufacturing defect cases, design defect cases, and inadequate warning cases. Proposed section 2(b) provides that "[a] product is defective in design when the foreseeable risks of harm posed by the product could have been reduced by the adoption of a reasonable alternative design by the seller . . . and the omission of the alternative design renders the product not reasonably safe." *Id.* § 2(b). Under the proposed Restatement, the consumer expectations test no longer "constitute[s] an independent standard for judging the defectiveness of product designs." *Id.* § 2(b) cmt. e. Instead, the focus is on the reasonableness of the design and the plaintiff's ability to prove that a reasonable alternative design would have reduced foreseeable risks of harm. *Id.* § 2(b) cmt. c. Although we need not, and do not, adopt the formulation of the Restatement (Third) at this time, it provides support for our holding that a focus on the design's benefits, risks, and feasible alternatives is a better approach to examining an alleged design defect. *See id.* § 2(b) cmt. c, reporters' note at 41 ("[s]cholarly commentary agrees overwhelmingly with . . . the risk-utility approach.").

[8] Our approval of an application of the risk-utility test in this case does not necessarily preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test. In *Pan-Alaska*, we adopted the Restatement § 402A as the law of this circuit. That section includes comment i, which allows a consumer to show that a product was unreasonably dangerous in a way not contemplated by the consumer. Other jurisdictions permit a plaintiff to show a product design defect under either approach. *See, e.g., Barker v. Lull Engineering Co.*, 20 Cal.3d 413, 432, 573 P.2d 443 (1978); *Caterpillar Tractor Co. v. Beck*, 593 P.2d 871, 884 (Alaska 1979). Given our traditional discretion in admiralty, *see East River*, 476 U.S. at 871, we conclude that giving plaintiffs such a choice is appropriate.

Marco and Martinac next maintain that the district court improperly applied the risk-utility test because it failed to balance the various factors and failed to find that a feasible alternative design would have prevented the fire. Marco and Martinac also argue that the district court erred in finding the design unreasonably dangerous. We disagree.

[9] The district court examined the risk from the design of the hydraulic system, and found it extremely high. Saratoga Fishing presented evidence that hydraulic hoses can fail for a variety of reasons and that any failure under the currently designed system would lead to a serious fire. The district court considered the utility of the current design, but was persuaded that an alternative design, namely a metal shield placed to isolate the hot surfaces of the engine and turbocharger from the hydraulic hoses, would have led to less "harmful consequences."

[10] The district court did not rely on the mere technical possibility of a safer design. *See Glover v. BIC Corp.*, 987 F.2d 1410, 1422-23 (9th Cir.), *amended*, 6 F.3d 1318 (9th Cir. 1993). Rather, Saratoga Fishing presented evidence regarding specific feasible improvements in design. Indeed, Mr. Martinac himself testified that Martinac "now puts up a sheet metal barrier" in vessels. A barrier could have isolated the hydraulic hoses from the turbocharger and engine surfaces, while maintaining the utility of the system. Although the district court found that Marco and Martinac's failure to use such a shield at the time of construction did not violate any industry rules or standards, it found the design unreasonably dangerous and defective because the design included a high risk of danger and there was a feasible alternative.

[11] Many qualified experts testified on both sides regarding the efficacy of the hydraulic system's design and the fea-

sibility and safety of other designs. The parties disagree on whose experts and evidence deserve credence, as the experts disagreed on many critical issues, including whether the design was defective. We must accord due deference to the district court's consideration of the experts' testimony and the court's findings regarding that testimony. *Anderson v. City of Bessemer City*, 470 U.S. 564, 573-75 (1985) (citing Fed. R. Civ. P. 52(a)) ("[w]here there are two permissible views of the evidence, the factfinder's choice between them cannot be clearly erroneous."). The district court correctly applied the risk-utility test in finding the design of the hydraulic system defective. Its findings are not clearly erroneous.[8]

C

Marco and Martinac argue that the district court erred in finding that Saratoga Fishing's misuse and alteration of the hydraulic system was not a superseding cause of the accident and subsequent loss of the vessel. Again, we disagree.

Any design defect must be shown to have contributed to, or caused the accident that led to the injury. *Matthews v. Hyster Co.*, 854 F.2d 1166, 1168 (9th Cir. 1988); **Prosser & Keeton** § 102, at 710-11 ("product defect under strict liability must be a proximate cause of claimant's injury"). Here, the

[8]Although Saratoga Fishing contends that the district court also found Marco and Martinac negligent, the district court's findings and conclusions indicate that the only basis for its holding was strict products liability. The court's mention of negligence in a few places is not sufficient to establish a finding of liability. If the district court did intend to reach a negligence decision, it did not set forth negligence law or make findings regarding that law. Further, it did not address the critical issue in negligence, the fault of the defendant. It addressed only the unreasonably dangerous nature of the product. Thus, any conclusion of negligence is unsupported.

presence of the hydraulic hoses near the hot engine and turbocharger surfaces without any effective shield was undoubtedly a proximate cause of and contributed to the fire that resulted in the vessel's loss. The district court found that this was the case, and this finding is not clearly erroneous.

Notwithstanding the existence of proximate cause, a manufacturer of a defective product can still be relieved of liability if some unforeseeable misuse or alteration occurred rising to the level of a superseding cause. **Prosser & Keeton** § 102, at 711. Marco and Martinac argue that such unforeseeable conduct occurred here.

They initially rely on a district court finding where the court purportedly stated that Saratoga Fishing's actions were a "precipitating cause" of the vessel's loss. Although the district court did make this finding, Marco and Martinac take it out of context. The court actually found that Saratoga Fishing's poor maintenance, misuse, and modifications to the hydraulic system "all contributed in some part to cause and bring about the catastrophic fire which ignited in the upper engine room . . . and was the precipitating cause of the vessel's loss . . . ." As this longer excerpt reveals, the court found that the fire was the precipitating cause of the loss. This is, of course, obvious. The court did not find that Saratoga Fishing's actions were a precipitating cause of the fire, rather it found that they were a contributing, or "substantial cause[ ]" of the fire.

[12] The district court did not find that Saratoga Fishing's misuse and alteration of the hydraulic system amounted to a superseding cause of the accident. The district court could have, but did not, find Saratoga Fishing's misuse to be

unforeseeable.[9] *Cf. Kay v. Cessna Aircraft Co.*, 548 F.2d 1370, 1372-73 (9th Cir. 1977) (plaintiff may recover if product is used in foreseeable, even if unintended use). The district court instead decided that hydraulic hose failure through either misuse, poor maintenance, or other conduct was foreseeable to Marco and Martinac, and that it would operate to reduce Saratoga Fishing's recovery but not to supersede Marco and Martinac's design defect as a proximate cause of the loss. This finding was not clearly erroneous.

[13] Marco and Martinac point to the alterations in the hydraulic system as examples that the system was modified substantially. The modifications, however, did not alter the design to the point where they superseded the design as a proximate cause of the fire.

D

Saratoga Fishing argues that the district court erred in reducing its award of damages by two-thirds based on the court's findings that it was also at fault for altering, misusing, failing to properly maintain, and ignoring the imminent failure of the hydraulic system. We agree with the district court.

---

[9]There was some controversy at trial over a water shield that was ostensibly installed over the turbocharger at the time the hydraulic system was installed on the SARATOGA. The district court was unable to determine whether this shield had been removed. It found however, that even if this shield had been in place, it would not have prevented the fire from igniting because it did not adequately cover the surfaces of the turbocharger and engine or isolate the hydraulic hoses from the surfaces. These findings are not clearly erroneous, and thus the presence or absence of the water shield does not affect Martinac and Marco's liability or affect whether Saratoga Fishing's actions constituted a superseding cause of the accident.

We have held that the concepts of "comparative fault (i.e., contributory negligence) . . . can be applied to the doctrine of strict products liability." *Pan-Alaska*, 565 F.2d at 1138. Under comparative fault principles, a party's blameworthy conduct that contributes to the proximate cause of the loss or injury will be compared to the defendant's liability and act to reduce the plaintiff's award of damages. *Id.* at 1139-40. As we stated: "It comes down to this: the defendant is strictly liable for the harm caused from his defective product, except that the award of damages shall be reduced in proportion to the plaintiff's contribution to his own loss or injury." *Id.* at 1139.

The district court found that Captain Vargas failed to properly maintain the hydraulic system. In an effort to increase the speed and power of the system, Vargas authorized enlarging the size of the seine, increasing the size of the power block, and increasing the velocity of the hydraulic flow and power to the machinery and equipment. This increased velocity raised the temperature of the hydraulic fluid and resulted in increased deterioration of the component parts of the hydraulic system, including the hydraulic hoses.

The district court also found that the engineers on board informed Captain Vargas that the hydraulic system was "overworked, wearing out and prone to an increasing number of failures." Vargas nonetheless continued to operate the system in excess of design pressures and temperatures and deferred remedial measures. Most significantly, the district court found that on January 16, the hydraulic hose that eventually failed was observed by the Chief Engineer and his assistant to be "leaking or weeping at the coupling."[10] Despite

---

[10]Although Chief Engineer Nielson testified that he did not consider the defective hose to be dangerous, the district court found that the engineer must have been aware that it needed replacing and that the hydraulic system should not be operated. The district court also rejected Nielson's testimony that he was unaware of a risk of danger.

being informed of the problem with the hose, Captain Vargas continued to operate the hydraulic system. The district court found that this created an "unreasonable risk that the hose would fail," causing hydraulic fluid to come in contact with the surface of the engine.

[14] The poor maintenance of the system, the modifications to the system, and the use of the system known to have a defective hose all contributed to the fire that caused the sinking of the vessel. The district court found that the conduct of those who manned the SARATOGA "border[ed] on irresponsible." The district judge is in the best position to weigh the evidence and apportion fault. *Alkmeon Naviera, S.A. v. M/V Marina L*, 633 F.2d 789, 796 (9th Cir. 1980). The district court's determination is not clearly erroneous and the apportionment of two-thirds liability to Saratoga Fishing will not be disturbed.

Saratoga Fishing next argues that Marco and Martinac failed to establish the standard of care of a prudent tuna boat operator. We reject this argument. Marco and Martinac presented substantial evidence concerning proper maintenance and care of a fishing vessel's hydraulic system. That is more than sufficient to establish a standard of care.

IV

We next address the subject of damages. The district court awarded Saratoga Fishing $452,326, which sum equals one-third of the combined value of the following items: the tuna catch, net, skiff, fuel, assorted equipment, crew losses, rescue costs, and cash. The district court declined to award damages for the value of replacement parts and the vessel's hull. Marco, Martinac, and Saratoga Fishing raise various objections to the award. With one exception, we reject each of the arguments and agree with the district court's determinations.

[15] In *East River S.S. Corp v. Transamerica Delaval Inc.*, 476 U.S. 858 (1986), the Supreme Court recognized a significant limitation to its decision to adopt the law of strict products liability to admiralty. The Court drew a distinction between damage caused to the "product itself" and damage to a "person or other property." *Id.* at 870. When the product itself is damaged, the "resulting loss is purely economic" and losses such as "repair costs, decreased value, and lost profits . . . essentially [involve] the failure of the purchaser to receive the benefit of its bargain—traditionally the core concern of contract law." *Id.* At least in the commercial context, the Court stated that damage to a product should be sought by plaintiffs through a contract or warranty claim. A cause of action for damages in a products liability claim in admiralty is available only for an injury to persons or "other property." *Id.*

We have not yet had the opportunity to further define the contours of "other property." The Fifth Circuit has developed some principles in this area. In *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925 (5th Cir. 1987), the Fifth Circuit was faced with the question whether the "product" consisted of a finished vessel or individual components that were included in the vessel. That court focused on the perspective of the buyer of the vessel, and held that the finished vessel that was the "object of the contract must be considered 'the product' rather than the individual components that make up the vessel[ ]." *Id.* at 928. The Fifth Circuit added that "the product in this context means the finished product bargained for by the buyer rather than components furnished by a supplier." *Id.* at 930.

A

We are faced here with a slightly different situation. The

vessel that Martinac sold to Madruga constituted the "product" as far as Madruga was concerned. We must decide whether the "product" changed when Madruga added various components, including a skiff, seine and other miscellaneous parts, to the vessel and resold it to Saratoga Fishing.

We are guided by the policies set forth in *East River*, where the Court stated that the focus of the product should be on the failure of the purchaser to receive the benefit of its bargain. Warranty and contract law are appropriate for this type of situation. Here, the purchaser is Saratoga Fishing and the object of its bargain was the M/V SARATOGA with the components already installed. Saratoga Fishing purchased the vessel "as is." Madruga made no "warranty or representation of vessel condition."

The Fifth Circuit's decision in *Nicor Supply Ships Assoc. v. General Motors*, 876 F.2d 501 (5th Cir. 1989) is not in conflict with this principle. In that case, the vessel was sold only once. The buyer then time-chartered the vessel to a third-party, who installed equipment on the vessel. The court properly focused on the bargain between the buyer and shipbuilder to determine what was the product. *Id.* at 505-06. The equipment was deemed "other property."

East River provides a situation more similar to the one we confront here. In that case, the shipbuilder sold the vessel to a purchaser who subsequently executed an agreement with a bareboat charterer. The charterer took the vessel in an "as is" condition and assumed full responsibility for the vessel including maintenance, repair and insurance. 476 U.S. at 875. The Supreme Court focused on the terms of "the charterers' agreements with the owners." *Id.* The Court also noted that the "contractual responsibilities thus were clearly laid out. There is no reason to extricate the parties from their bargain." *Id.* The contract being discussed is that between the first

buyer and the bareboat charterer, who the Court treated as equivalent to a second buyer.

[16] Saratoga Fishing is the second buyer in this case. We must therefore focus on its agreement with Madruga. We see no reason to extricate Saratoga Fishing from its bargain. The parties chose not to include a seller's warranty, and we will not second guess their choice. The "product" in this case is the vessel that was delivered to Saratoga Fishing. Because it included the skiff, net, fuel, spare parts, and miscellaneous equipment, those items are part of the product and are not recoverable in a tort action as "other property."

It would indeed be anomalous for the shipbuilder's liability to increase every time the vessel was modified and resold. We agree with Marco and Martinac that such a result is inconsistent with *East River* and with the policies behind the application of products liability law to admiralty. The district court's award of damages to Saratoga Fishing for the skiff, net, fuel, spare parts, and miscellaneous equipment installed on the SARATOGA when it was sold to Saratoga Fishing is reversed.

Marco and Martinac next argue that an award of damages for the tuna catch was unjustified. They contend that the lost catch was a nonrecoverable pure economic loss under various theories: first, because the lost catch was a work in progress; second, because the lost catch was equivalent to damaged cargo; and third because it was similar to failed or damaged crops. We disagree.

[17] The tuna catch that was destroyed was different than cargo because it was not being shipped from one site to another pursuant to a commercial agreement. It was new property on board the SARATOGA that belonged to the vessel's owner. The tuna was also not a work in progress as it

had substantial value after being caught. The district court correctly reduced the value of the tuna by accounting for fuel costs and Panama Canal toll charges, and accurately computed the value of the tuna lying in the holds of the SARATOGA. Finally, the cases involving damaged crops are agricultural cases and are not helpful in the context of admiralty. We conclude that the tuna catch was not an economic loss, but was a loss of other property. The district court did not abuse its discretion in awarding damages for the tuna catch.

Marco and Martinac lastly contend that the district court erred in awarding Saratoga Fishing the value of Captain Vargas' lost currency because it was duplicative of sums awarded under the category of the lost crew property. The district court found that Vargas' testimony was "not effectively refuted" and was "credible." Marco and Martinac have shown insufficient evidence that the district court's findings were clearly erroneous. We will not disturb them.

B

Saratoga Fishing appeals the district court's refusal to award the value of replacement equipment installed in the vessel. It also argues that the district court erred in not permitting it to include the value of the vessel's hull in its damages sought from Marco.

[18] The district court concluded that replacement parts should not be recoverable as "other property" under *East River*. The court stated that permitting recovery would lead to the absurd result that the shipbuilder's liability would grow as the performance of the product's relationship to the shipbuilder decreased. We agree. Because a product may have any number of components replaced with spare parts in the ordi-

nary course of events, viewing these parts as "other property" would lead to absurd results. Such results would be contrary to the policies of *East River*, where the Supreme Court expressed its intention to exclude damages to the product itself from tort law and leave the injured party to remedies in the law of contract and warranty. 476 U.S. at 871-72; *see Exxon Shipping Co. v. Pacific Resources, Inc.*, 835 F. Supp. 1195, 1200 (D. Haw. 1993) (prohibiting recovery of cost of replacement parts in admiralty products liability action).

Saratoga Fishing lastly seeks damages from Marco (not Martinac) for the loss of the vessel itself. This argument is based on two propositions: first, that the approach to damages in *East River* should not apply to fishermen; and second, that for a component manufacturer such as Marco, the only "product" is its hydraulic system and that the vessel is "other property." Neither argument has merit.

Saratoga Fishing relies on footnote 5 in *East River*, in which the Supreme Court observed that it had at times applied a more protective approach in some admiralty contexts for fishermen, and that no fishermen were involved in that case. Even if that footnote reflected an exception to the rules set forth in *East River*, it is not applicable here. Saratoga Fishing is a company that owned an ocean-going tuna fishing vessel; there are no individual fishermen involved in this litigation. In any case, the only court that has considered the effect, if any, of the footnote, applied the *East River* damages rules without exception to a case involving plaintiffs who were fishermen. *McConnell v. Caterpillar Tractor Co.*, 646 F. Supp. 1520, 1525 (D.N.J. 1986).

Also without merit is Saratoga Fishing's argument that the vessel should be deemed "other property" relative to Marco because Marco designed a component part of the vessel. The

Fifth Circuit has rejected a similar claim. In *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925, 928 (5th Cir. 1987), *cert. denied*, 485 U.S. 1007 (1988), the Fifth Circuit rejected a damages claim against the designer of a component part, observing that there is "no rational reason to give the buyer greater rights to recover economic losses for a defect in the product because the component is designed, constructed or furnished by someone other than the final manufacturer." *Id.* at 929.

[19] This rationale is sound. Saratoga Fishing bargained for a fishing vessel. That is the product. The hydraulic system is an integral part of the product. Seldom does one company design and build all component parts for an integrated product such as a fishing vessel. Indeed, Saratoga Fishing, as we noted above, bargained with Madruga, not Martinac, for the vessel, so Saratoga Fishing was one step removed from the initial purchase. Even if Madruga had sought recovery for the hull, however, it would make no difference. Permitting recovery from Marco for the vessel's hull would undermine the policy of *East River*—namely, that contract and warranty law should cover such losses, while tort law should be reserved for "other property."

C

Marco and Martinac argue that the district court erred in awarding prejudgment interest to Saratoga Fishing. They contend that Saratoga Fishing delayed filing a claim for almost two years after the vessel's loss and that Saratoga Fishing further delayed the litigation during a dispute over an attorney's conflict of interest.[11]

[11]Although Marco and Martinac initially objected to an award of prejudgment interest because of the high degree of Saratoga Fishing's comparative fault, they abandoned that ground on appeal.

"In admiralty, prejudgment interest must be granted unless peculiar circumstances justify its denial." *McKay v. Rockwell Int'l Corp.*, 704 F.2d 444, 463 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984). The determination of whether peculiar circumstances exist is left to the district court's sound discretion. *Id.* at 464.

[20] Here, the district court concluded that this case was not "sufficiently peculiar or exceptional to justify departure from the general rule." Saratoga Fishing's claim was filed within the statute of limitations; thus, any delay was certainly not peculiar or unusual. The attorney conflict is also not an unusual occurrence. There is insufficient reason to disturb the district court's exercise of its sound discretion in awarding prejudgment interest.

Marco and Martinac also object to the district court's purported computation of postjudgment interest as inconsistent with the statutory mandate of 28 U.S.C. § 1961. Saratoga Fishing correctly points out, however, that the district court did not award postjudgment interest. It awarded additional prejudgment interest from the date of the damages findings and conclusions, June 1, 1993, until the date of final judgment, August 27, 1993. We find no error with the decision to award additional prejudgment interest. Of course, in light of our decision reversing part of the damages award, the district court should recompute the entire award of prejudgment interest on remand.

Finally, Saratoga Fishing is entitled to a further award of interest pursuant to 28 U.S.C. § 1961 from the date of entry of judgment until payment is made.

V

We are persuaded that the district court, having heard from all the experts and witnesses, did not, with the one aforementioned exception, err in deciding the issues of liability and damages. Marco and Martinac will pay their share because of their defectively designed hydraulic system, but Saratoga Fishing's award will be substantially reduced because of its failure to properly maintain and operate that system.

On remand the district court is directed to reconsider the amount of damages and interest and to enter judgment accordingly.

AFFIRMED in part, REVERSED in part and REMANDED. Each party shall bear its own costs.

NOONAN, Circuit Judge, concurring and dissenting:

I concur in the opinion of the court, except as to its exclusion of damages for the skiff, seine net, fuel, spare parts and other miscellaneous equipment sold by Madruga to Saratoga Fishing as part of the sale of the M/V SARATOGA. None of this property was manufactured or sold by Martinac. Under *East River*, 476 U.S. 858, 867 all of it was "other property," damages for which are recoverable in tort. The court abandons *East River* and puts this circuit in conflict with another major maritime circuit, *Nicor Supply Ships Associates v. General Motors*, 876 F.2d 501, 505-06 (5th Cir. 1989). The opinion also repudiates controlling authority in this circuit, *Pan-Alaska Fisheries, Inc. v. Marine Construction & Design Co.*, 565 F.2d 1129 (9th Cir. 1977). That case accepted "as the law of products liability in this circuit, at least for this case arising

in admiralty," the Restatement (Second) of Torts, § 402A. *Id.* at 1135. Under the Restatement, the original seller of a product in a defective condition that is unreasonably dangerous that has entered the stream of commerce is strictly liable to the ultimate consumer for physical harm caused to that consumer's property. Saratoga Fishing is here the ultimate consumer; Martinac is the original seller; the property damaged was Saratoga Fishing's and no more a part of the product sold by Martinac than was the tuna catch for which damages are granted.

The court appears to have been swayed by the consideration that additions made by a middleman could increase the original seller's liability. That of course is a risk the seller of an unreasonably dangerous, defective product takes. If the explosion had occurred while Madruga still owned the boat after adding the skiff and net, there is no doubt that Martinac would have been liable for those additional items. Martinac's exposure should not decrease because Madruga sold the ship to Saratoga Fishing. Whatever theory one adopts, the liability of the original seller may change as the ultimate consumer adds or subtracts property which can be affected by the defective product. The theory of strict liability holds that the seller is stuck whatever foreseeable damage to the consumer's other property his product causes.

APPENDIX C — OPINION AND ORDER OF THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT FILED AUGUST 4, 1995

FOR PUBLICATION

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

SARATOGA FISHING CO., *Plaintiff-Appellee,* v. MARCO SEATTLE INC., *Defendant-Appellant,* and J.M. MARTINAC & CO.; CATERPILLAR TRACTOR CO.; SOUTHWEST MARINE HARDWARE, INC., *Defendants.*	No. 93-56344 D.C. No. CV-87-01691-JMF ORDER AND OPINION
SARATOGA FISHING CO., *Plaintiff-Appellant,* v. MARCO SEATTLE INC.; SOUTHWEST MARINE HARDWARE, INC.; CATERPILLAR TRACTOR CO.; J.M. MARTINAC & CO., *Defendants-Appellees.*	No. 93-56368 D.C. No. CV-87-01691-JMF

Appendix C

SARATOGA FISHING CO., *Plaintiff-Appellee,* v. J.M. MARTINAC & CO., *Defendant-Appellant.*	No. 93-56501 D.C. No. CV-87-01691-JMF

Appeals from the United States District Court
for the Southern District of California
James M. Fitzgerald, Chief Judge, Presiding

Argued and Submitted
February 8, 1995—Pasadena, California

Filed April 25, 1995
Withdrawn August 4, 1995
Filed August 4, 1995

Before: Robert R. Beezer and John T. Noonan, Jr., Circuit Judges, and David Alan Ezra, District Judge.*

Opinion by Judge Beezer

SUMMARY

Admiralty and Marine/Torts/Products Liability

The court of appeals affirmed in part a district court judgment, reversed in part and remanded. The court held that the

*The Honorable David Alan Ezra, United States District Judge for the District of Hawaii, sitting by designation.

district court correctly applied the "risk-utility" test in a design defect product liability action against a shipbuilder and the designer of the vessel's hydraulic system.

The fishing vessel M/V SARATOGA was designed and built by appellant J.M. Martinac & Co. for Joseph Madruga. During the construction process, Martinac contracted with appellant Marco Seattle Inc. to design a hydraulic system. The system was installed by Martinac and inspected by Marco.

The vessel's captain, Manuel Vargas, took the vessel to Panama, where the vessel was outfitted with a seine and other fishing equipment. The vessel then commenced tuna fishing operations. The vessel was purchased from Madruga by appellee Saratoga Fishing Co. As captain, Vargas ordered a series of modifications to various machinery and equipment: the size of the seine was increased; a larger boom and power block were installed; larger cartridges were installed in the pumps; and a 100-horsepower electric drive and pump were installed to increase power to the hydraulic system.

The Chief Engineer noticed that the hydraulic system was experiencing failures, but Vargas continued to seek increased power to the hydraulic system. An Assistant Engineer observed worn out pump cartridges and an overloaded hydraulic system. A new Chief Engineer noticed more problems with the hydraulic system. Repair work was completed in Panama. The Chief Engineer later observed a hydraulic hose seeping hydraulic fluid, but Vargas did not shut down the hydraulic system. A hydraulic hose pulled out of its coupling and hydraulic fluid sprayed up and fell back onto the hot surface of the turbocharger. The fluid ignited, and a fire spread throughout the vessel. The SARATOGA sank.

Saratoga Fishing brought suit in the district court against

Martinac and Marco within the court's admiralty jurisdiction seeking recovery for property losses. Saratoga Fishing argued that the hydraulic system was defectively designed, and sought recovery under theories of strict liability, negligence and failure to warn. Saratoga Fishing offered the expert testimony of a naval architect, who testified that the Marco hydraulic drive system incorporated an unsafe design. In the architect's opinion, the hydraulic hoses were located too close to the hot surfaces of the engine and turbocharger. The architect noted that hydraulic hoses and couplings are prone to failure for a variety of reasons, and that the designer of the hydraulic system should have taken preventive measures such as relocating the hoses elsewhere, installing an electric instead of a diesel motor to reduce the risk of a fire developing from leaking hydraulic fluid, or isolating the hoses from the engine and turbocharger by the use of shielding.

Marco and Martinac argued that the vessel's design was not defective, that Saratoga Fishing failed to maintain the fire suppression system or the hydraulic hoses, and that Saratoga Fishing had substantially altered and misused the hydraulic system. A marine architect testified that the hydraulic system on board the vessel met well-established marine practice, and that, in his opinion, the system was not operating properly because of the modifications made by Saratoga Fishing.

The district court concluded that Marco and Martinac were strictly liable for the loss of the SARATOGA. The court found that the hydraulic system was defectively designed despite the fact that it met established marine practices, and that the placement of the hydraulic hoses in close proximity to the engine and turbocharger presented a known serious risk of fire. The court found that feasible design changes, such as the placement of a shield to isolate the hydraulic hoses from the engine and turbocharger, would have reduced the risk.

The court found that the modifications made by Saratoga Fishing did not alter the chain of causation because they did not affect the design. The court applied the "risk-utility" test, examining the risk and utility of the design along with the feasibility of alternative designs.

The district court found, however, that Saratoga Fishing was at fault due to its poor maintenance of the hydraulic system, its overuse of the system, and its failure to recognize the signs of imminent failure of the system. Saratoga Fishing's comparative fault reduced its recovery by two-thirds. The award of damages to Saratoga Fishing included losses of the tuna catch, seine, skiff, fuel, equipment, the crews' personal losses, the cost of the rescue and Vargas' cash. The award did not include the loss of any replacement parts that Saratoga Fishing installed on the vessel or the loss of the vessel's hull. The court awarded prejudgment interest and additional interest to Saratoga Fishing until the date of the final judgment. Marco and Martinac appealed.

[1] The law of products liability, including strict liability, is recognized as part of the general maritime law. [2] The Ninth Circuit has held a commercial seller of a maritime product strictly liable under Restatement (Second) of Torts § 402A in a factually similar case involving a presumably sophisticated commercial buyer. [3] In addition, a plaintiff's misuse or alteration of a product does not relate to whether the manufacturer or seller had a duty to the consumer or user. [4] The alterations made to the hydraulic system by Saratoga Fishing did not substantially alter the design of the system.

[5] In regard to the determination of whether the product was defectively designed, the language of § 402A neither compelled nor precluded the application of either the risk-utility test or the "consumer expectations" test. [6] The

district court was correct regarding the appropriateness of appiying the risk-utility test in this case. If the consumer expectations test had been applied, the danger posed by the placement of the hoses of the hydraulic system in close proximity to the hot engine and turbocharger surfaces would likely have been deemed open and obvious. The risk-utility test provided a superior yardstick of whether the product was unreasonably dangerous or defective. [7] A focus on the design's benefits, risks, and feasible alternatives was a better approach to examining an alleged design defect. [8] However, the approval of an application of the risk-utility test in this case did not necessarily preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test.

[9] The district court examined the risk from the design of the hydraulic system and found it to be extremely high. [10] The district court did not rely on the mere technical possibility of a safer design. [11] Due deference had to be given to the district court's consideration of the experts' testimony. Thus, the district court correctly applied the risk-utility test in finding the design of the hydraulic system defective.

[12] The district court did not find that Saratoga Fishing's misuse and alteration of the hydraulic system amounted to a superseding cause of the accident. [13] The alterations in the hydraulic system did not alter the design to the point where they superseded the design as a proximate cause of the fire.

[14] The poor maintenance of the hydraulic system, the modifications to the system and the use of the system known to have a defective hose all contributed to the fire that caused the sinking of the vessel. Thus, the apportionment of two-thirds liability to Saratoga Fishing was not disturbed.

[15] A cause of action for damages in a products liability

claim in admiralty is available only for injury to persons or "other property." [16] The "product" in this case was the vessel that was delivered to Saratoga Fishing. Because it included the skiff, net, fuel, spare parts, and miscellaneous equipment, those items were part of the product and were not recoverable in a tort action as "other property." [17] The tuna catch was not an economic loss, but was a loss of other property. Thus, the district court did not abuse its discretion in awarding damages for the tuna catch. [18] Because a product may have any number of components replaced with spare parts in the ordinary course of events, viewing these parts as "other property" would lead to absurd results. [19] Permitting recovery from Marco for the vessel's hull would undermine relevant policy.

[20] There was insufficient reason to disturb the district court's award of prejudgment interest.

COUNSEL

Daniel B. MacLeod, Alford & MacLeod, San Diego, California, for defendant-appellant-cross-appellee Marco Seattle, Inc. Duncan B. Koler, Walton, Ottesen, Meads & Koler, San Diego, California, for defendant-appellant-cross-appellee J.M. Martinac & Company.

Keith Zakarin, Pillsbury, Madison & Sutro, San Diego, California, for plaintiff-appellee-cross-appellant Saratoga Fishing Company.

ORDER

The panel has reviewed the petition for rehearing and suggestion for rehearing en banc. Upon further consideration, the petition for rehearing is granted. The opinion filed April 25, 1995, appearing at 53 F.2d 984 (1995), is hereby withdrawn and a new opinion is filed in its place. The balance of claims in the petition for rehearing are DENIED and the suggestion for rehearing en banc is REJECTED.

OPINION

BEEZER, Circuit Judge:

This products liability action in admiralty arose following an engine room fire that caused the flooding and sinking of the fishing vessel M/V SARATOGA. The district court concluded that J.M. Martinac & Company ("Martinac"), the shipbuilder, and Marco Seattle, Inc. ("Marco"), the designer of the vessel's hydraulic system, were strictly liable to Saratoga Fishing Company ("Saratoga Fishing"), the vessel owner, for damages to "other property" on the vessel because the fire and subsequent loss resulted from a defectively designed hydraulic system. The district court reduced the damages award by two-thirds, however, because of Saratoga Fishing's comparative fault in maintaining and operating that system. Both sides appeal the district court's determinations on liability and damages.[1]

We have jurisdiction over these timely appeals pursuant to 28 U.S.C. § 1291. Because we agree with all but one facet of the district court's resolution of this action, we affirm in part, reverse in part and remand.

---

[1]Two other defendants, Caterpillar Tractor Company and Southwest Marine Hardware, Inc., are not parties to this appeal.

Appendix C

I

We retrace the fateful path of the fishing vessel M/V SARATOGA ("SARATOGA"). The vessel was designed and built in 1971 by Martinac in its Tacoma, Washington shipyards for Joseph Madruga. During the construction process, Martinac, after consulting with Madruga, contracted with Marco to design a hydraulic system. The system was installed by Martinac and inspected by Marco.

The SARATOGA's hydraulic system included pumps, pump drives, control valves, hoses and pressure gauges all connected to a 190-horsepower Caterpillar D333 engine and turbocharger. The system operated machinery and equipment such as a power block, a boom and winches, which were necessary to use the seine (net) for tuna fishing operations. Hydraulic fluid was pumped through the system to operate the deck machinery. The fluid exited the pumps through five rubber hoses attached to the pump drive by metal couplings. The hoses rose vertically from the pump to the overhead, passing near the engine and turbocharger.

The completed vessel was launched in 1972. Its captain, Manuel Vargas, took the vessel from San Diego, where it had undergone various sea trials, to Panama where she was outfitted with a seine and other fishing equipment. The SARATOGA then commenced tuna fishing operations.

In 1974, the Manuel S. Vargas, Jr. Corporation, which was principally owned by Vargas and later changed its name to Saratoga Fishing, purchased the SARATOGA from Madruga. At the time of sale, the vessel was equipped with five speedboats, a purse skiff, a seine, and various electronic equipment. Vargas continued to serve as captain until 1979.

Appendix C

When Vargas returned to the SARATOGA as captain in 1984, the condition of the vessel had deteriorated. While overseeing a refurbishing of the vessel, Vargas ordered a series of modifications to various machinery and equipment: the size of the seine was increased; a larger boom was installed; a larger power block was installed; larger cartridges were installed in the pumps; and a 100-horsepower electric drive and pump were installed to increase power to the hydraulic system above that of the original equipment.

A new Chief Engineer joined the vessel in 1984. Wesley Ogilvie noticed on his first fishing trip that the hydraulic system was experiencing failures, such as leaking valves and breaking hoses. Nevertheless, Captain Vargas continued to seek increased power to the hydraulic system to quicken the speed at which the seine could be pursed. Assistant Engineer Lewis Jorge joined the crew in 1985, and observed worn out pump cartridges and an overloaded hydraulic system. In late 1985, Ogilvie was replaced as Chief Engineer by Mark Nielson, who noticed more problems with the hydraulic system. Hydraulic hoses needed replacement, winches were leaking hydraulic fluid, and the temperature of the hydraulic fluid was abnormally high.

Various repair work was completed on the SARATOGA when she docked in Panama late in 1985, including the replacement of seals in the hydraulic system and pump cartridges. Workers also repaired damage to the turbocharger on the main engine. On January 8, 1986, the SARATOGA departed Panama to fish for tuna near the Gallapagos Islands in the Pacific Ocean.

On the afternoon of January 16, Chief Engineer Nielson observed one hydraulic hose seeping hydraulic fluid at the coupling attaching the hose to the pump. Although Captain Vargas arranged to rendezvous with another vessel to obtain a necessary tool to manufacture a replacement hose, Vargas did not shut down the hydraulic system. Instead, Vargas utilized the system to catch more tuna late that afternoon.

A short time later, Lewis Jorge entered the engine room and observed that a hydraulic hose was "pulsating." As Jorge watched, the hose pulled out of its coupling and hydraulic fluid sprayed up from the coupling and fell back onto the hot surface of the turbocharger. The fluid ignited causing an immediate conflagration in the engine room. Jorge and Nielson attempted to extinguish the fire, but their efforts were unsuccessful.

The fire quickly spread throughout the SARATOGA, and Captain Vargas ordered the crew to abandon ship. The crew left in a skiff, and were soon rescued by another vessel. No crew member suffered serious injury. Unfortunately, the SARATOGA sank.[2]

Property losses included, in addition to the loss of the vessel, all of the fishing equipment, fuel, a substantial tuna catch stored in the vessel, crew members' personal property losses, and $16,000 in cash that Captain Vargas had placed in the vessel's safe.

---

[2]Although the district court found that the cause of the SARATOGA's sinking was the flooding that occurred as a consequence of the fire, it was unable to determine exactly how and why the flooding occurred. The district court determined that resolving that question was not necessary to its disposition. We agree.

Saratoga Fishing brought the instant lawsuit in district court against Martinac and Marco within the court's admiralty jurisdiction seeking recovery for property losses. *See* 28 U.S.C. § 1333. The court conducted a 14-day trial in which it heard testimony from a variety of expert witnesses and considered a substantial amount of evidence.

At trial, Saratoga Fishing argued that the hydraulic system was defectively designed. It sought recovery under theories of strict liability, negligence, and failure to warn.

Saratoga Fishing offered, among other witnesses, the expert testimony of David Saveker, a naval architect. Saveker testified that the Marco hydraulic drive system incorporated an unsafe design. The hydraulic hoses were, in Saveker's opinion, located too close to the hot surfaces of the engine and turbocharger. As hydraulic hoses and couplings are prone to fail for a variety of reasons, Saveker noted, the designer of the hydraulic system should have taken preventive measures such as relocating the hoses elsewhere, installing an electric instead of a diesel motor to reduce the risk of a fire developing from leaking hydraulic fluid, or isolating the hoses from the engine and turbocharger by the use of shielding. Such shielding would have "screen[ed] out a large percentage of the probability of an immediate torch" from the leaking hydraulic fluid. Saveker testified that the system was "a bad accident waiting to happen."

Marco and Martinac argued that the vessel's design was not defective, that Saratoga Fishing had failed to maintain the fire suppression system or the hydraulic hoses, and that Saratoga Fishing had substantially altered and misused the hydraulic system.

Larry Grief, a marine architect, testified as an expert wit-

ness for Marco and Martinac. He stated that the hydraulic system on board the SARATOGA met well-established marine practice and was similar to those on almost every vessel he had been aboard. The hydraulic hoses, Grief noted, were designed with a safety margin of 6 to 1 over standard operating pressures. In Grief's opinion, the hydraulic system was not operating properly because of the modifications made by Saratoga Fishing. The addition of a 100-horsepower electric drive caused the hydraulic fluid to pass through the system at a higher velocity, leading to a corresponding increase in the temperature of the hydraulic fluid, which in turn caused rapid deterioration. Furthermore, the larger equipment (seine, boom, and power block) installed by Saratoga Fishing required more hydraulic power, but the installation was not accompanied by any modifications in the hydraulic hoses.

The district court concluded that Marco and Martinac were strictly liable for the loss of the SARATOGA. The court found that the hydraulic system was defectively designed despite the fact that it met established marine practices. The placement of the hydraulic hoses in close proximity to the engine and turbocharger presented a known serious risk of fire and, the district court found, feasible design changes, such as the placement of a shield or barrier to isolate the hydraulic hoses from the engine and turbocharger, would have reduced the risk. The modifications made by Saratoga Fishing did not alter the chain of causation because they did not affect the design.

The court also found, however, that Saratoga Fishing was at fault due to its poor maintenance of the hydraulic system, its overuse of the system, and its failure to recognize the signs of imminent failure of the system. Saratoga Fishing's comparative fault reduced its recovery by two-thirds.

In a later ruling, the district court awarded damages to Saratoga Fishing in the amount of $452,326, one-third of the sum it determined to be Saratoga Fishing's total damages. The award included losses of the tuna catch, seine, skiff, fuel, equipment, the crews' personal losses, the cost of the rescue, and Captain Vargas' cash.

Not included in the award was the loss of any replacement parts that Saratoga Fishing installed on the vessel. The award also did not include the loss of the vessel's hull, which the trial court had decided pretrial was not recoverable from either defendant in an admiralty products liability action.

The court awarded prejudgment interest, which raised the total award to Saratoga Fishing to $734,940.38. Finally, the court awarded additional interest to Saratoga Fishing until the date of the final judgment at the rate of $153.09 per day.

II

We review the admiralty trial court's findings of fact for clear error, and its conclusions of law *de novo*. *Havens v. F/T Polar Mist*, 996 F.2d 215, 217 (9th Cir. 1993). The existence and extent of a duty are questions of law reviewed *de novo*, while proximate cause and whether such a duty has been breached are questions of fact reviewed for clear error. *Martinez v. Korea Shipping Corp.*, 903 F.2d 606, 609 (9th Cir. 1990).

We review *de novo* the legal conclusion that damages are available. *United States v. Timberland Paving & Constr. Co.*, 745 F.2d 595, 599 (9th Cir. 1984) ("[w]e review questions of law de novo"). Finally, we review for clear error a trial court's factual findings in support of an award for damages. *Bergen v. F/V St. Patrick*, 816 F.2d 1345, 1347 (9th Cir. 1987), *cert. denied*, 493 U.S. 871 (1989).

III

[1] Saratoga's claims fall within the admiralty jurisdiction, as they arose on the high seas. 28 U.S.C. § 1333; *see Jerome B. Grubart, Inc. v. Great Lakes Dredge & Dock Co.*, 115 S. Ct. 1043, 1047 (1995). We apply, as the district court did, substantive admiralty law, which, absent a federal statute, is the general maritime law. *East River S.S. Corp. v. Transamerica Delaval Inc.*, 476 U.S. 858, 864 (1986). The law of products liability, including strict liability, is recognized as part of the general maritime law. *Id.* at 865; *Pan-Alaska Fisheries, Inc. v. Marine Constr. & Design Co.*, 565 F.2d 1129, 1135 (9th Cir. 1977).

In holding that a strict products liability action would lie in admiralty, we adopted the Restatement (Second) of Torts § 402A (1965) as "the law of products liability in this circuit" because it was "the best and most widely-accepted expression of the theory of strict products liability." *Pan-Alaska*, 565 F.2d at 1135. Section 402A provides as follows:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although

> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Under the doctrine of strict products liability, manufacturers and sellers of products are held liable because society considers them better able than individuals to bear the costs of injuries and damage resulting from defective products. *See* **W. Page Keeton et al., Prosser and Keeton on Torts** § 98, at 692-93 (5th ed. 1984) [hereinafter **Prosser & Keeton**] (manufacturers and sellers "have the capacity to distribute the losses of the few among the many who purchase the products"); *Greenman v. Yuba Power Prods., Inc.*, 59 Cal.2d 57, 377 P.2d 897 (1963); **Thomas J. Schoenbaum, Admiralty and Maritime Law** § 5-6, at 177 (1994) (policies underlying strict liability apply in admiralty).

A

Martinac and Marco argue, based on two theories, that the district court erred in concluding that they owed any duty to Saratoga Fishing. They contend first that Saratoga Fishing was a sophisticated commercial buyer and that imposition of a strict products liability duty in this context is unwarranted. Next, Martinac and Marco argue that Saratoga Fishing failed to establish that the vessel, specifically the hydraulic system, was without substantial change. Thus, they contend that under Restatement section 402A(1)(b), they had no duty to protect

Saratoga Fishing from a defective condition unreasonably dangerous to it.[3]

Marco and Martinac raise interesting policy arguments for why commercial sellers should not owe a strict products liability duty to sophisticated commercial buyers of products such as fishing vessels. Many of the concerns animating strict products liability, including the ability of manufacturers and sellers to better absorb the costs of defective products, do not necessarily support strict products liability in this context. Indeed, private insurance on the part of the vessel's owner would, it is argued, provide a more effective economic allocation of risk. We have also recognized that section 402A of the Restatement "should be applied only when the purposes it seeks to serve dictate its application." *McKay v. Rockwell Int'l Corp.*, 704 F.2d 444, 447 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

[2] The question is not, however, an open one in this circuit. We have held a commercial seller of a maritime product strictly liable under Restatement section 402A in a factually similar case involving a presumably sophisticated commercial buyer. *Pan-Alaska*, 565 F.2d at 1134-37; *see also East River*, 476 U.S. 864-66, 871 (discussing application of strict products liability to "manufacturer in a commercial relationship"). Although we have not specifically considered the policy arguments raised here, we have yet to create an exception to strict products liability for certain sellers based on the commercial

[3]Marco and Martinac also argue that the trial court erroneously found that they had a duty to provide a "safe vessel." We agree that their duty was to provide a vessel that was not unreasonably dangerous to the user. In our judgment, however, the district court's choice of words in one finding does not undermine the propriety of its analysis of the appropriate nature of Marco and Martinac's duty.

nature of the sale.[4] *See* Paul N. Wonacott, *Products Liabilities of Shipbuilders and Repairers*, 62 Tulane L. Rev. 465, 469 (1988) (liability for a defective product under section 402A attaches in admiralty regardless whether "the accident-causing product is a structure uniquely designed to a particular owner's specifications"). Because many maritime transactions occur between commercial sellers and sophisticated buyers, the position advocated by Marco and Martinac would tend to eliminate what we have already accepted—that strict products liability is a part of the general maritime law.

Marco and Martinac's other argument regarding strict products liability duty is also unavailing. They misperceive the meaning of "substantial change" as defined by section 402A(1)(b). The Restatement section 402A provides that the product must "reach the user or consumer without substantial change in the condition in which it is sold." Thus, if a manufacturer's product is altered by a seller or other intermediary, the manufacturer might be immune from strict liability. *See* Restatement § 402A cmt. p. Once the product has reached the "user or consumer," however, that element has been satisfied. *See Emerson G.M. Diesel, Inc. v. Alaskan Enter.*, 732 F.2d 1468, 1475 (9th Cir. 1984) (product must not be "altered or changed when it reached the consumer"), *overruled in part on other grounds by East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858 (1986).

[4]In *McKay*, 704 F.2d at 447 n.4, we recognized those limited circumstances when strict products liability does not apply. They include unavoidably unsafe products, used products and services. We also added to that list in *McKay* that only in limited circumstances should a manufacturer be held strictly liable in tort for injuries to a service member in active duty caused by a design defect in military equipment. *Id.* at 447-48.

[3] Any misuse or fault by the user or consumer could and indeed, in this case, did reduce the plaintiff's recovery. Restatement § 402A cmt. n; *Pan-Alaska*, 565 F.2d at 1138 (comparative fault concepts can be applied to strict products liability). Whether the plaintiff misused the product, or significantly altered the product so as to become an intervening, superseding proximate cause of the resulting loss may even relieve the manufacturer or seller from liability altogether, but that misuse or alteration does not relate to whether the manufacturer or seller had a duty to the consumer or user. The duty exists if the product was in a defective condition at the time the consumer or user obtained the product. Because the hydraulic system retained the same design when Saratoga Fishing acquired the product from Madruga in 1974 as it did when Marco and Martinac installed the system, Marco and Martinac owe a duty to Saratoga Fishing regarding any design defect.

[4] In any case, the alterations made to the hydraulic system by Saratoga Fishing did not substantially alter the design of the system, which is what the district court found to be defective. The design of the system was the same on the day of the vessel's loss as it was when the SARATOGA left the shipyard.

B

Martinac and Marco argue that the district court erred in finding the design of the hydraulic system to be defective. They contend that the district court improperly applied a risk-utility test instead of a consumer or user expectations test to determine if the hydraulic system was defectively designed. Finally, Marco and Martinac argue, the district court misapplied the risk-utility test. We disagree with each of these contentions.

Admiralty courts use two methods to determine whether a product is defectively designed. The first method, drawn from Restatement section 402A comment i, provides that a product is defective if it is "dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." This is the consumer expectations test. *See* Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton** § 99, at 698.

Although utilized by many courts, this test has come under criticism because of several shortcomings. First, it allows a manufacturer or seller to escape liability when the unreasonable danger is open and obvious. *See* **Prosser & Keeton** § 99, at 698-99; **M. Stuart Madden, Products Liability** § 6.7, at 213-14 (1988). Second, it is unpredictable in application. *See* **Prosser & Keeton** § 99, at 699. Because of the weaknesses of this test, some courts have sought an alternative way to determine whether a product was defectively designed.

A second test evolved from Judge Learned Hand's balancing test in a negligence case, *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947). The risk-utility balancing test, in the context of a strict products liability action, weighs the utility of the product against the gravity of the danger. If, after considering the utility of the product, the economic and practical feasibility of alternative designs, and the gravity and likelihood of the potential harm, the factfinder determines that the risk outweighs the utility, the product is

deemed defective or unreasonably dangerous.[6] *See Pavlides v. Galveston Yacht Basin, Inc.*, 727 F.2d 330, 337 (5th Cir. 1984) (applying risk-utility test in admiralty case); *Borel v. Fibreboard Paper Prods. Corp.*, 493 F.2d 1076, 1078 (5th Cir. 1973) (nonadmiralty case), *cert. denied*, 419 U.S. 869 (1974); Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton** § 99, at 699-700.

[5] A recent law review article noted that "[a]dmiralty decisions reveal that no predictable fact pattern or particular liability theory will dictate application of any one test; so it is not believed possible to identify a consistently preferred admiralty standard." Wonacott, *Shipbuilder Liability*, at 471. The language of section 402A neither compels nor precludes the application of either test; it merely provides for an examination of whether a product is unreasonably dangerous.

We have not indicated which test or tests should be applied in admiralty cases in this circuit.[8] The district court rejected

[6]In a design defect case, the terms "defective condition" and "unreasonably dangerous" arguably share a common meaning. *See Hagans v. Oliver Mach. Co.*, 576 F.2d 97, 99 n.4 (5th Cir. 1978) (stating that "[a]s used in the Restatement" the two terms are synonymous); *see also* Carl T. Bogus, *Pistols, Politics & Products Liability*, 59 U. Cin. L. Rev. 1103, 1107-08 (1991) (arguing that in design defect cases, unreasonable danger is synonymous with defective condition); David P. Griffith, Note, *Products Liability—Negligence Presumed: An Evolution*, 67 Tex. L. Rev. 851, 859-60, 860 n.50 (1989) (citing sources supporting proposition that "defective" and "unreasonably dangerous" are synonymous and will lead to the same conclusion in design defect cases). Although we need not hold that the two terms will be synonymous in all cases, we use the terms interchangeably here. In other words, under either the consumer expectations test or the risk-utility test, a product that is deemed unreasonably dangerous will also be deemed to be in a defective condition. Conversely, a product in a defective condition must also be unreasonably dangerous.

[8]Marco and Martinac rely on *McCune v. F. Alioto Fish Co.*, 597 F.2d 1244 (9th Cir. 1979) and *Complaint of Diehl*, 610 F. Supp. 223 (Idaho 1985), to support their argument that only a consumer expectations test should be applied in admiralty. Neither case supports that proposition. *McCune* merely affirmed, without discussion, a district court's finding that a product was not defective. *Diehl*, which is a district court decision, did apply a consumer expectations test in the context of an admiralty case, but it did not discuss, and it certainly did not preclude, the applicability of other tests.

the pure application of the "so-called consumer's expectations" test in comments g and i of Restatement section 402A. Instead, the court applied the risk-utility test, citing the Fifth Circuit's decision in *Pavlides*. The district court proceeded to examine the risk and utility of the design along with the feasibility of alternative designs.

[6] We agree with the district court regarding the appropriateness of applying the risk-utility test in this case. If the consumer expectations test had been applied, the danger posed by the placement of the hoses of the hydraulic system in close proximity to the hot engine and turbocharger surfaces would likely be deemed open and obvious, especially to a purchaser or user of a fishing vessel. We are not satisfied with the possibility that a product with a design having high risk and limited utility, and a design that has other feasible alternatives, could be found not to be unreasonably dangerous or defective merely because a consumer, using the product in a foreseeable way, could recognize the danger.[7] As the district court correctly recognized, the risk-utility test provides a superior yardstick of whether a product is unreasonably dangerous or defective.

[7]Neither party argued that the product in this case was an unavoidably unsafe product. *See* Restatement § 402A cmt. k.

[7] We note that a preliminary draft of the Restatement (Third) of Torts by the reporters for the American Law Institute relies on a risk-utility analysis for deciding design defect cases. *See* Restatement (Third) of Torts: Products Liability § 2 (Tentative Draft No. 1, 1994). The tentative draft divides defective product cases into three categories: manufacturing defect cases, design defect cases, and inadequate warning cases. Proposed section 2(b) provides that "[a] product is defective in design when the foreseeable risks of harm posed by the product could have been reduced by the adoption of a reasonable alternative design by the seller . . . and the omission of the alternative design renders the product not reasonably safe." *Id.* § 2(b). Under the proposed Restatement, the consumer expectations test no longer "constitute[s] an independent standard for judging the defectiveness of product designs." *Id.* § 2(b) cmt. e. Instead, the focus is on the reasonableness of the design and the plaintiff's ability to prove that a reasonable alternative design would have reduced foreseeable risks of harm. *Id.* § 2(b) cmt. c. Although we need not, and do not, adopt the formulation of the Restatement (Third) at this time, it provides support for our holding that a focus on the design's benefits, risks, and feasible alternatives is a better approach to examining an alleged design defect. *See id.* § 2(b) cmt. c, reporters' note at 41 ("[s]cholarly commentary agrees overwhelmingly with . . . the risk-utility approach.").

[8] Our approval of an application of the risk-utility test in this case does not necessarily preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test. In *Pan-Alaska*, we adopted the Restatement § 402A as the law of this circuit. That section includes comment i, which allows a consumer to show that a product was unreasonably dangerous in a way not contemplated by the consumer. Other jurisdictions permit a plaintiff to show a product design defect under either approach. *See, e.g., Barker*

v. Lull Engineering Co., 20 Cal.3d 413, 432, 573 P.2d 443 (1978); *Caterpillar Tractor Co. v. Beck*, 593 P.2d 871, 884 (Alaska 1979). Given our traditional discretion in admiralty, *see East River*, 476 U.S. at 871, we conclude that giving plaintiffs such a choice is appropriate.

Marco and Martinac next maintain that the district court improperly applied the risk-utility test because it failed to balance the various factors and failed to find that a feasible alternative design would have prevented the fire. Marco and Martinac also argue that the district court erred in finding the design unreasonably dangerous. We disagree.

[9] The district court examined the risk from the design of the hydraulic system, and found it extremely high. Saratoga Fishing presented evidence that hydraulic hoses can fail for a variety of reasons and that any failure under the currently designed system would lead to a serious fire. The district court considered the utility of the current design, but was persuaded that an alternative design, namely a metal shield placed to isolate the hot surfaces of the engine and turbocharger from the hydraulic hoses, would have led to less "harmful consequences."

[10] The district court did not rely on the mere technical possibility of a safer design. *See Glover v. BIC Corp.*, 987 F.2d 1410, 1422-23 (9th Cir.), *amended*, 6 F.3d 1318 (9th Cir. 1993). Rather, Saratoga Fishing presented evidence regarding specific feasible improvements in design. Indeed, Mr. Martinac himself testified that Martinac "now puts up a sheet metal barrier" in vessels. A barrier could have isolated the hydraulic hoses from the turbocharger and engine surfaces, while maintaining the utility of the system. Although the district court found that Marco and Martinac's failure to use such a shield at the time of construction did not violate any indus-

try rules or standards, it found the design unreasonably dangerous and defective because the design included a high risk of danger and there was a feasible alternative.

[11] Many qualified experts testified on both sides regarding the efficacy of the hydraulic system's design and the feasibility and safety of other designs. The parties disagree on whose experts and evidence deserve credence, as the experts disagreed on many critical issues, including whether the design was defective. We must accord due deference to the district court's consideration of the experts' testimony and the court's findings regarding that testimony. *Anderson v. City of Bessemer City*, 470 U.S. 564, 573-75 (1985) (citing Fed. R. Civ. P. 52(a)) ("[w]here there are two permissible views of the evidence, the factfinder's choice between them cannot be clearly erroneous."). The district court correctly applied the risk-utility test in finding the design of the hydraulic system defective. Its findings are not clearly erroneous.[8]

C

Marco and Martinac argue that the district court erred in finding that Saratoga Fishing's misuse and alteration of the hydraulic system was not a superseding cause of the accident and subsequent loss of the vessel. Again, we disagree.

[8]Although Saratoga Fishing contends that the district court also found Marco and Martinac negligent, the district court's findings and conclusions indicate that the only basis for its holding was strict products liability. The court's mention of negligence in a few places is not sufficient to establish a finding of liability. If the district court did intend to reach a negligence decision, it did not set forth negligence law or make findings regarding that law. Further, it did not address the critical issue in negligence, the fault of the defendant. It addressed only the unreasonably dangerous nature of the product. Thus, any conclusion of negligence is unsupported.

Any design defect must be shown to have contributed to, or caused the accident that led to the injury. *Matthews v. Hyster Co.*, 854 F.2d 1166, 1168 (9th Cir. 1988); **Prosser & Keeton** § 102, at 710-11 ("product defect under strict liability must be a proximate cause of claimant's injury"). Here, the presence of the hydraulic hoses near the hot engine and turbocharger surfaces without any effective shield was undoubtedly a proximate cause of and contributed to the fire that resulted in the vessel's loss. The district court found that this was the case, and this finding is not clearly erroneous.

Notwithstanding the existence of proximate cause, a manufacturer of a defective product can still be relieved of liability if some unforeseeable misuse or alteration occurred rising to the level of a superseding cause. **Prosser & Keeton** § 102, at 711. Marco and Martinac argue that such unforeseeable conduct occurred here.

They initially rely on a district court finding where the court purportedly stated that Saratoga Fishing's actions were a "precipitating cause" of the vessel's loss. Although the district court did make this finding, Marco and Martinac take it out of context. The court actually found that Saratoga Fishing's poor maintenance, misuse, and modifications to the hydraulic system "all contributed in some part to cause and bring about the catastrophic fire which ignited in the upper engine room . . . and was the precipitating cause of the vessel's loss . . . ." As this longer excerpt reveals, the court found that the fire was the precipitating cause of the loss. This is, of course, obvious. The court did not find that Saratoga Fishing's actions were a precipitating cause of the fire, rather it found that they were a contributing, or "substantial cause[ ]" of the fire.

[12] The district court did not find that Saratoga Fishing's

misuse and alteration of the hydraulic system amounted to a superseding cause of the accident. The district court could have, but did not, find Saratoga Fishing's misuse to be unforeseeable.[8] *Cf. Kay v. Cessna Aircraft Co.*, 548 F.2d 1370, 1372-73 (9th Cir. 1977) (plaintiff may recover if product is used in foreseeable, even if unintended use). The district court instead decided that hydraulic hose failure through either misuse, poor maintenance, or other conduct was foreseeable to Marco and Martinac, and that it would operate to reduce Saratoga Fishing's recovery but not to supersede Marco and Martinac's design defect as a proximate cause of the loss. This finding was not clearly erroneous.

[13] Marco and Martinac point to the alterations in the hydraulic system as examples that the system was modified substantially. The modifications, however, did not alter the design to the point where they superseded the design as a proximate cause of the fire.

D

Saratoga Fishing argues that the district court erred in reducing its award of damages by two-thirds based on the court's findings that it was also at fault for altering, misusing, failing to properly maintain, and ignoring the imminent failure of the hydraulic system. We agree with the district court.

[8]There was some controversy at trial over a water shield that was ostensibly installed over the turbocharger at the time the hydraulic system was installed on the SARATOGA. The district court was unable to determine whether this shield had been removed. It found however, that even if this shield had been in place, it would not have prevented the fire from igniting because it did not adequately cover the surfaces of the turbocharger and engine or isolate the hydraulic hoses from the surfaces. These findings are not clearly erroneous, and thus the presence or absence of the water shield does not affect Martinac and Marco's liability or affect whether Saratoga Fishing's actions constituted a superseding cause of the accident.

We have held that the concepts of "comparative fault (i.e., contributory negligence) . . . can be applied to the doctrine of strict products liability." *Pan-Alaska*, 565 F.2d at 1138. Under comparative fault principles, a party's blameworthy conduct that contributes to the proximate cause of the loss or injury will be compared to the defendant's liability and act to reduce the plaintiff's award of damages. *Id.* at 1139-40. As we stated: "It comes down to this: the defendant is strictly liable for the harm caused from his defective product, except that the award of damages shall be reduced in proportion to the plaintiff's contribution to his own loss or injury." *Id.* at 1139.

The district court found that Captain Vargas failed to properly maintain the hydraulic system. In an effort to increase the speed and power of the system, Vargas authorized enlarging the size of the seine, increasing the size of the power block, and increasing the velocity of the hydraulic flow and power to the machinery and equipment. This increased velocity raised the temperature of the hydraulic fluid and resulted in increased deterioration of the component parts of the hydraulic system, including the hydraulic hoses.

The district court also found that the engineers on board informed Captain Vargas that the hydraulic system was "overworked, wearing out and prone to an increasing number of failures." Vargas nonetheless continued to operate the system in excess of design pressures and temperatures and deferred remedial measures. Most significantly, the district court found that on January 16, the hydraulic hose that eventually failed was observed by the Chief Engineer and his assistant to be "leaking or weeping at the coupling."[9] Despite

[9]Although Chief Engineer Nielson testified that he did not consider the defective hose to be dangerous, the district court found that the engineer

being informed of the problem with the hose, Captain Vargas continued to operate the hydraulic system. The district court found that this created an "unreasonable risk that the hose would fail," causing hydraulic fluid to come in contact with the surface of the engine.

[14] The poor maintenance of the system, the modifications to the system, and the use of the system known to have a defective hose all contributed to the fire that caused the sinking of the vessel. The district court found that the conduct of those who manned the SARATOGA "border[ed] on irresponsible." The district judge is in the best position to weigh the evidence and apportion fault. *Alkmeon Naviera, S.A. v. M/V Marina L.*, 633 F.2d 789, 796 (9th Cir. 1980). The district court's determination is not clearly erroneous and the apportionment of two-thirds liability to Saratoga Fishing will not be disturbed.

Saratoga Fishing next argues that Marco and Martinac failed to establish the standard of care of a prudent tuna boat operator. We reject this argument. Marco and Martinac presented substantial evidence concerning proper maintenance and care of a fishing vessel's hydraulic system. That is more than sufficient to establish a standard of care.

IV

We next address the subject of damages. The district court awarded Saratoga Fishing $452,326, which sum equals one-third of the combined value of the following items: the tuna catch, net, skiff, fuel, assorted equipment, crew losses, rescue

must have been aware that it needed replacing and that the hydraulic system should not be operated. The district court also rejected Nielson's testimony that he was unaware of a risk of danger.

costs, and cash. The district court declined to award damages for the value of replacement parts and the vessel's hull. Marco, Martinac, and Saratoga Fishing raise various objections to the award. With one exception, we reject each of the arguments and agree with the district court's determinations.

[15] In *East River S.S. Corp v. Transamerica Delaval Inc.*, 476 U.S. 858 (1986), the Supreme Court recognized a significant limitation to its decision to adopt the law of strict products liability to admiralty. The Court drew a distinction between damage caused to the "product itself" and damage to a "person or other property." *Id.* at 870. When the product itself is damaged, the "resulting loss is purely economic" and losses such as "repair costs, decreased value, and lost profits . . . essentially [involve] the failure of the purchaser to receive the benefit of its bargain—traditionally the core concern of contract law." *Id.* At least in the commercial context, the Court stated that damage to a product should be sought by plaintiffs through a contract or warranty claim. A cause of action for damages in a products liability claim in admiralty is available only for an injury to persons or "other property." *Id.*

We have not yet had the opportunity to further define the contours of "other property." The Fifth Circuit has developed some principles in this area. In *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925 (5th Cir. 1987), the Fifth Circuit was faced with the question whether the "product" consisted of a finished vessel or individual components that were included in the vessel. That court focused on the perspective of the buyer of the vessel, and held that the finished vessel that was the "object of the contract must be considered 'the product' rather than the individual components that make up the vessel[ ]." *Id.* at 928. The Fifth Circuit added that "the product in this context means the finished product bargained for by the buyer rather than components furnished by a supplier." *Id.* at 930.

A

We are faced here with a slightly different situation. The vessel that Martinac sold to Madruga constituted the "product" as far as Madruga was concerned. We must decide whether the "product" changed when Madruga added various components, including a skiff, seine and other miscellaneous parts, to the vessel and resold it to Saratoga Fishing.

We are guided by the policies set forth in *East River*, where the Court stated that the focus of the product should be on the failure of the purchaser to receive the benefit of its bargain. Warranty and contract law are appropriate for this type of situation. Here, the purchaser is Saratoga Fishing and the object of its bargain was the M/V SARATOGA with the components already installed. Saratoga Fishing purchased the vessel "as is." Madruga made no "warranty or representation of vessel condition."

The Fifth Circuit's decision in *Nicor Supply Ships Assoc. v. General Motors*, 876 F.2d 501 (5th Cir. 1989) is not in conflict with this principle. In that case, the vessel was sold only once. The buyer then time-chartered the vessel to a third-party, who installed equipment on the vessel. The court properly focused on the bargain between the buyer and shipbuilder to determine what was the product. *Id.* at 505-06. The equipment was deemed "other property."

East River provides a situation more similar to the one we confront here. In that case, the shipbuilder sold the vessel to a purchaser who subsequently executed an agreement with a bareboat charterer. The charterer took the vessel in an "as is" condition and assumed full responsibility for the vessel including maintenance, repair and insurance. 476 U.S. at 875. The Supreme Court focused on the terms of "the charterers'

agreements with the owners." *Id.* The Court also noted that the "contractual responsibilities thus were clearly laid out. There is no reason to extricate the parties from their bargain." *Id.* The contract being discussed is that between the first buyer and the bareboat charterer, who the Court treated as equivalent to a second buyer.

[16] Saratoga Fishing is the second buyer in this case. We must therefore focus on its agreement with Madruga. We see no reason to extricate Saratoga Fishing from its bargain. The parties chose not to include a seller's warranty, and we will not second guess their choice. The "product" in this case is the vessel that was delivered to Saratoga Fishing. Because it included the skiff, net, fuel, spare parts, and miscellaneous equipment, those items are part of the product and are not recoverable in a tort action as "other property."

It would indeed be anomalous for the shipbuilder's liability to increase every time the vessel was modified and resold. We agree with Marco and Martinac that such a result is inconsistent with *East River* and with the policies behind the application of products liability law to admiralty. The district court's award of damages to Saratoga Fishing for the skiff, net, fuel, spare parts, and miscellaneous equipment installed on the SARATOGA when it was sold to Saratoga Fishing is reversed.

Marco and Martinac next argue that an award of damages for the tuna catch was unjustified. They contend that the lost catch was a nonrecoverable pure economic loss under various theories: first, because the lost catch was a work in progress; second, because the lost catch was equivalent to damaged cargo; and third because it was similar to failed or damaged crops. We disagree.

[17] The tuna catch that was destroyed was different than

cargo because it was not being shipped from one site to another pursuant to a commercial agreement. It was new property on board the SARATOGA that belonged to the vessel's owner. The tuna was also not a work in progress as it had substantial value after being caught. The district court correctly reduced the value of the tuna by accounting for fuel costs and Panama Canal toll charges, and accurately computed the value of the tuna lying in the holds of the SARATOGA. Finally, the cases involving damaged crops are agricultural cases and are not helpful in the context of admiralty. We conclude that the tuna catch was not an economic loss, but was a loss of other property. The district court did not abuse its discretion in awarding damages for the tuna catch.

Marco and Martinac lastly contend that the district court erred in awarding Saratoga Fishing the value of Captain Vargas' lost currency because it was duplicative of sums awarded under the category of the lost crew property. The district court found that Vargas' testimony was "not effectively refuted" and was "credible." Marco and Martinac have shown insufficient evidence that the district court's findings were clearly erroneous. We will not disturb them.

B

Saratoga Fishing appeals the district court's refusal to award the value of replacement equipment installed in the vessel. It also argues that the district court erred in not permitting it to include the value of the vessel's hull in its damages sought from Marco.

[18] The district court concluded that replacement parts should not be recoverable as "other property" under *East River*. The court stated that permitting recovery would lead to

the absurd result that the shipbuilder's liability would grow as the performance of the product's relationship to the shipbuilder decreased. We agree. Because a product may have any number of components replaced with spare parts in the ordinary course of events, viewing these parts as "other property" would lead to absurd results. Such results would be contrary to the policies of *East River*, where the Supreme Court expressed its intention to exclude damages to the product itself from tort law and leave the injured party to remedies in the law of contract and warranty. 476 U.S. at 871-72; *see Exxon Shipping Co. v. Pacific Resources, Inc.*, 835 F. Supp. 1195, 1200 (D. Haw. 1993) (prohibiting recovery of cost of replacement parts in admiralty products liability action).

Saratoga Fishing lastly seeks damages from Marco (not Martinac) for the loss of the vessel itself. This argument is based on two propositions: first, that the approach to damages in *East River* should not apply to fishermen; and second, that for a component manufacturer such as Marco, the only "product" is its hydraulic system and that the vessel is "other property." Neither argument has merit.

Saratoga Fishing relies on footnote 5 in *East River*, in which the Supreme Court observed that it had at times applied a more protective approach in some admiralty contexts for fishermen, and that no fishermen were involved in that case. Even if that footnote reflected an exception to the rules set forth in *East River*, it is not applicable here. Saratoga Fishing is a company that owned an ocean-going tuna fishing vessel; there are no individual fishermen involved in this litigation. In any case, the only court that has considered the effect, if any, of the footnote, applied the *East River* damages rules without exception to a case involving plaintiffs who were fishermen. *McConnell v. Caterpillar Tractor Co.*, 646 F. Supp. 1520, 1525 (D.N.J. 1986).

Also without merit is Saratoga Fishing's argument that the

vessel should be deemed "other property" relative to Marco because Marco designed a component part of the vessel. The Fifth Circuit has rejected a similar claim. In *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925, 928 (5th Cir. 1987), *cert. denied*, 485 U.S. 1007 (1988), the Fifth Circuit rejected a damages claim against the designer of a component part, observing that there is "no rational reason to give the buyer greater rights to recover economic losses for a defect in the product because the component is designed, constructed or furnished by someone other than the final manufacturer." *Id.* at 929.

[19] This rationale is sound. Saratoga Fishing bargained for a fishing vessel. That is the product. The hydraulic system is an integral part of the product. Seldom does one company design and build all component parts for an integrated product such as a fishing vessel. Indeed, Saratoga Fishing, as we noted above, bargained with Madruga, not Martinac, for the vessel, so Saratoga Fishing was one step removed from the initial purchase. Even if Madruga had sought recovery for the hull, however, it would make no difference. Permitting recovery from Marco for the vessel's hull would undermine the policy of *East River*—namely, that contract and warranty law should cover such losses, while tort law should be reserved for "other property."

C

Marco and Martinac argue that the district court erred in awarding prejudgment interest to Saratoga Fishing. They contend that Saratoga Fishing delayed filing a claim for almost two years after the vessel's loss and that Saratoga Fishing further delayed the litigation during a dispute over an attorney's conflict of interest.[11]

[11]Although Marco and Martinac initially objected to an award of prejudgment interest because of the high degree of Saratoga Fishing's comparative fault, they abandoned that ground on appeal.

"In admiralty, prejudgment interest must be granted unless peculiar circumstances justify its denial." *McKay v. Rockwell Int'l Corp.*, 704 F.2d 444, 463 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984). The determination of whether peculiar circumstances exist is left to the district court's sound discretion. *Id.* at 464.

[20] Here, the district court concluded that this case was not "sufficiently peculiar or exceptional to justify departure from the general rule." Saratoga Fishing's claim was filed within the statute of limitations; thus, any delay was certainly not peculiar or unusual. The attorney conflict is also not an unusual occurrence. There is insufficient reason to disturb the district court's exercise of its sound discretion in awarding prejudgment interest.

Marco and Martinac also object to the district court's purported computation of postjudgment interest as inconsistent with the statutory mandate of 28 U.S.C. § 1961. Saratoga Fishing correctly points out, however, that the district court did not award postjudgment interest. It awarded additional prejudgment interest from the date of the damages findings and conclusions, June 1, 1993, until the date of final judgment, August 27, 1993. We find no error with the decision to award additional prejudgment interest. Of course, in light of our decision reversing part of the damages award, the district court should recompute the entire award of prejudgment interest on remand.

Finally, Saratoga Fishing is entitled to a further award of interest pursuant to 28 U.S.C. § 1961 from the date of entry of judgment until payment is made.

Appendix C

V

We are persuaded that the district court, having heard from all the experts and witnesses, did not, with the one aforementioned exception, err in deciding the issues of liability and damages. Marco and Martinac will pay their share because of their defectively designed hydraulic system, but Saratoga Fishing's award will be substantially reduced because of its failure to properly maintain and operate that system.

On remand the district court is directed to reconsider the amount of damages and interest and to enter judgment accordingly.

AFFIRMED in part, REVERSED in part and REMANDED. Each party shall bear its own costs.

APPENDIX D — OPINION OF THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT FILED AUGUST 4, 1995

FOR PUBLICATION

UNITED STATES COURT OF APPEALS

FOR THE NINTH CIRCUIT

SARATOGA FISHING CO., *Plaintiff-Appellee,* v. MARCO SEATTLE INC., *Defendant-Appellant,* v. J.M. MARTINAC & CO.; CATERPILLAR TRACTOR CO.; SOUTHWEST MARINE HARDWARE, INC., *Defendants.*	No. 93-56344 D.C. No. CV-87-01691-JMF OPINION
SARATOGA FISHING CO., *Plaintiff-Appellant,* v. MARCO SEATTLE INC.; SOUTHWEST MARINE HARDWARE, INC.; CATERPILLAR TRACTOR CO.; J.M. MARTINAC & CO., *Defendants-Appellees.*	No. 93-56368 D.C. No. CV-87-01691-JMF

Appendix D

SARATOGA FISHING CO.,
Plaintiff-Appellee,
v.
J.M. MARTINAC & CO.,
Defendant-Appellant.

No. 93-56501
D.C. No.
CV-87-01691-JMF

Appeals from the United States District Court
for the Southern District of California
James M. Fitzgerald, Chief Judge, Presiding

Argued and Submitted
February 8, 1995—Pasadena, California

Filed April 25, 1995

Before: Robert R. Beezer and John T. Noonan, Jr., Circuit Judges, and David Alan Ezra, District Judge.*

Opinion by Judge Beezer

SUMMARY

Admiralty & Marine/Torts/Litigation & Procedure

The court of appeals affirmed a judgment of the district court. The court held that in an admiralty suit by a shipowner against the vessel's builder and a component manufacturer for product liability based on design defect, the district court may apply either risk-utility or consumer expectation analysis.

---

*The Honorable David Alan Ezra, United States District Judge for the District of Hawaii, sitting by designation.

Appendix D

An engine room fire led to the sinking of M/V *Saratoga* without injury to any of her crew. Appellee Saratoga Fishing Co., the vessel's owner, sued appellants J.M. Martinac & Co., the shipbuilder, and Marco Seattle, the manufacturer of the shipboard hydraulic system. The complaint alleged that the fire was caused by defects in the design of the hydraulic system, which failed and spilled inflammable fluid on the hot surface of the *Saratoga*'s engine. Saratoga proceeded on theories of strict liability, negligence, and failure to warn.

The evidence showed that the ship's captain ignored signs and warnings of an overloaded hydraulic system before the fire, and that the owner had modified various systems of the ship to increase speed and power. The resultant increased velocity of hydraulic fluid to machinery and equipment increased deterioration of component parts, and eventually precipitated the eruption of a pressure hose near the hot engine.

Marco and Martinac argued that the vessel's design was not defective, that Saratoga had failed to maintain the fire suppression system or the hydraulic hoses, and had substantially altered and misused the hydraulic system.

Applying risk-utility analysis, the district court concluded that the hydraulic system was defectively designed despite its conformity to established marine practices, and that Marco and Martinac were strictly liable for the *Saratoga* 's loss. The court found that the risk from the system design was extremely high, that a feasible alternative design (shield between hose and engine) would have led to less serious consequences, and that hydraulic hose failure was foreseeable to Marco and Martinac.

The court also determined that Saratoga was at fault due to its poor maintenance and overuse of the hydraulic system, and its failure to act on signs of imminent failure. Accordingly, the court reduced Saratoga's award by two thirds. The award of damages did not include replacement parts or the hull, the latter excluded on the ground that it was not recoverable in an admiralty products liability action.

On appeal, Marco and Martinac also contended that they owed no duty to Saratoga because it was a sophisticated commercial buyer, and that Saratoga failed to establish that the hydraulic system was free of substantial change from its condition when it left the builder's yard.

[1] A commercial seller of a maritime product may be strictly liable to a sophisticated commercial buyer. Many maritime transactions occur between commercial sellers and sophisticated buyers; the position advocated by Marco and Martinac would tend to eliminate what has already been accepted: strict products liability is part of the general maritime law.

[2] Any misuse or fault by the user or consumer can and did reduce the plaintiff's recovery, and may even relieve the manufacturer or seller from liability. But the duty to the consumer or user exists if the product was in a defective condition at the time the consumer or user obtained the product. [3] In any case, the alterations to the hydraulic system by Saratoga did not substantially alter the design of the system, which is what the district court found to be defective.

[4] The district court was correct regarding the appropriateness of the risk-utility test. It is not satisfactory that a product with a high-risk design defect and limited utility that has feasible alternatives could be found not unreasonably dangerous or defective merely because a consumer using it in a foreseeable way could recognize the danger. [5] A focus on the design's benefits, risks, and feasible alternatives is a better approach to examining an alleged design defect.

[6] Approval of an application of the risk-utility test in this case did not preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test. Giving plaintiffs a choice is appropriate.

[7] The district court's conclusion that the failure of the hydraulic hose through misuse, poor maintenance, or other conduct was foreseeable to Marco and Martinac was not clearly erroneous. [8] The modifications did not alter the design to the point where they superseded the design as a proximate cause of the fire.

[9] Concepts of comparative fault can be applied to the doctrine of strict products liability. [10] The poor maintenance and use of and alterations to the hydraulic system contributed to the fire that led to the sinking of *Saratoga*. The district court's apportionment of fault was not clearly erroneous.

[11] A cause of action for damages in a products liability claim in admiralty is available only for injury to persons and "other property." [12] A products liability plaintiff is not able to recover damages for economic losses resulting from the loss of the vessel, but can recover them for items added to the vessel by its user.

[13] Although the components added by the owner were integral to the operation of the ship, they were not part of the vessel that Martinac sold to the original owner. The items for

which the district court awarded damages were different from the component parts that were part of the vessel when it was delivered. [14] The tuna catch that was destroyed was not cargo because it was not being shipped from one point to another pursuant to a commercial agreement; it was new property that belonged to the vessel's owner. It was not a work in progress because it had substantial value after being caught. Nor was it like damaged crops in agricultural cases because the context was admiralty.

[15] Because a product may have any number of components replaced with spare parts in the ordinary course of events, viewing them as "other property" would lead to absurd results, and contravene the policy excluding damage to the product itself to tort law and leave the injured party to contract and warranty remedies. [16] Permitting recovery from Marco for the hull would undermine the same policy.

COUNSEL

Daniel B. MacLeod, Alford & MacLeod, San Diego, California, for defendant-appellant-cross-appellee Marco Seattle, Inc. Duncan B. Koler, Walton, Ottesen, Meads & Koler, San Diego, California, for defendant-appellant-cross-appellee J.M. Martinac & Company.

Keith Zakarin, Pillsbury, Madison & Sutro, San Diego, California, for plaintiff-appellee-cross-appellant Saratoga Fishing Company.

OPINION

BEEZER, Circuit Judge:

This products liability action in admiralty arose following an engine room fire that caused the flooding and sinking of the fishing vessel M/V SARATOGA. The district court concluded that J.M. Martinac & Company ("Martinac"), the shipbuilder, and Marco Seattle, Inc. ("Marco"), the designer of the vessel's hydraulic system, were strictly liable to Saratoga Fishing Company ("Saratoga Fishing"), the vessel owner, for damages to "other property" on the vessel because the fire and subsequent loss resulted from a defectively designed hydraulic system. The district court reduced the damages award by two-thirds, however, because of Saratoga Fishing's comparative fault in maintaining and operating that system. Both sides appeal the district court's determinations on liability and damages.[1]

We have jurisdiction over these timely appeals pursuant to 28 U.S.C. § 1291. Because we agree with the district court's resolution of this action, we affirm.

I

We retrace the fateful path of the fishing vessel M/V SARATOGA ("SARATOGA"). The vessel was designed and built in 1971 by Martinac in its Tacoma, Washington shipyards for Joseph McDruga. During the construction process, Martinac, after consulting with McDruga, contracted with Marco to design a hydraulic system. The system was installed by Martinac and inspected by Marco.

---

[1]Two other defendants, Caterpillar Tractor Company and Southwest Marine Hardware, Inc., are not parties to this appeal.

Appendix D

The SARATOGA's hydraulic system included pumps, pump drives, control valves, hoses and pressure gauges all connected to a 190-horsepower Caterpillar D333 engine and turbocharger. The system operated machinery and equipment such as a power block, a boom and winches, which were necessary to use the seine (net) for tuna fishing operations. Hydraulic fluid was pumped through the system to operate the deck machinery. The fluid exited the pumps through five rubber hoses attached to the pump drive by metal couplings. The hoses rose vertically from the pump to the overhead, passing near the engine and turbocharger.

The completed vessel was launched in 1972. Its captain, Manuel Vargas, took the vessel from San Diego, where it had undergone various sea trials, to Panama where she was outfitted with a seine and other fishing equipment. The SARATOGA then commenced tuna fishing operations.

In 1974, the Manuel S. Vargas, Jr. Corporation, which was principally owned by Vargas and later changed its name to Saratoga Fishing, purchased the SARATOGA from McDruga. At the time of sale, the vessel was equipped with five speedboats, a purse skiff, a seine, and various electronic equipment. Vargas continued to serve as captain until 1979.

When Vargas returned to the SARATOGA as captain in 1984, the condition of the vessel had deteriorated. While overseeing a refurbishing of the vessel, Vargas ordered a series of modifications to various machinery and equipment: the size of the seine was increased; a larger boom was installed; a larger power block was installed; larger cartridges were installed in the pumps; and a 100-horsepower electric drive and pump were installed to increase power to the hydraulic system above that of the original equipment.

Appendix D

A new Chief Engineer joined the vessel in 1984. Wesley Ogilvie noticed on his first fishing trip that the hydraulic system was experiencing failures, such as leaking valves and breaking hoses. Nevertheless, Captain Vargas continued to seek increased power to the hydraulic system to quicken the speed at which the seine could be pursed. Assistant Engineer Lewis Jorge joined the crew in 1985, and observed worn out pump cartridges and an overloaded hydraulic system. In late 1985, Ogilvie was replaced as Chief Engineer by Mark Nielson, who noticed more problems with the hydraulic system. Hydraulic hoses needed replacement, winches were leaking hydraulic fluid, and the temperature of the hydraulic fluid was abnormally high.

Various repair work was completed on the SARATOGA when she docked in Panama late in 1985, including the replacement of seals in the hydraulic system and pump cartridges. Workers also repaired damage to the turbocharger on the main engine. On January 8, 1986, the SARATOGA departed Panama to fish for tuna near the Gallapagos Islands in the Pacific Ocean.

On the afternoon of January 16, Chief Engineer Nielson observed one hydraulic hose seeping hydraulic fluid at the coupling attaching the hose to the pump. Although Captain Vargas arranged to rendezvous with another vessel to obtain a necessary tool to manufacture a replacement hose, Vargas did not shut down the hydraulic system. Instead, Vargas utilized the system to catch more tuna late that afternoon.

A short time later, Lewis Jorge entered the engine room and observed that a hydraulic hose was "pulsating." As Jorge watched, the hose pulled out of its coupling and hydraulic fluid sprayed up from the coupling and fell back onto the hot surface of the turbocharger. The fluid ignited causing an immediate conflagration in the engine room. Jorge and Niel-

son attempted to extinguish the fire, but their efforts were unsuccessful.

The fire quickly spread throughout the SARATOGA, and Captain Vargas ordered the crew to abandon ship. The crew left in a skiff, and were soon rescued by another vessel. No crew member suffered serious injury. Unfortunately, the SARATOGA sank.[2]

Property losses included, in addition to the loss of the vessel, all of the fishing equipment, fuel, a substantial tuna catch stored in the vessel, crew members' personal property losses, and $16,000 in cash that Captain Vargas had placed in the vessel's safe.

Saratoga Fishing brought the instant lawsuit in district court against Martinac and Marco within the court's admiralty jurisdiction seeking recovery for property losses. *See* 28 U.S.C. § 1333. The court conducted a 14-day trial in which it heard testimony from a variety of expert witnesses and considered a substantial amount of evidence.

At trial, Saratoga Fishing argued that the hydraulic system was defectively designed. It sought recovery under theories of strict liability, negligence, and failure to warn.

Saratoga Fishing offered, among other witnesses, the expert testimony of David Saveker, a naval architect. Saveker testi-

[2]Although the district court found that the cause of the SARATOGA's sinking was the flooding that occurred as a consequence of the fire, it was unable to determine exactly how and why the flooding occurred. The district court determined that resolving that question was not necessary to its disposition. We agree.

fied that the Marco hydraulic drive system incorporated an unsafe design. The hydraulic hoses were, in Saveker's opinion, located too close to the hot surfaces of the engine and turbocharger. As hydraulic hoses and couplings are prone to fail for a variety of reasons, Saveker noted, the designer of the hydraulic system should have taken preventive measures such as relocating the hoses elsewhere, installing an electric instead of a diesel motor to reduce the risk of a fire developing from leaking hydraulic fluid, or isolating the hoses from the engine and turbocharger by the use of shielding. Such shielding would have "screen[ed] out a large percentage of the probability of an immediate torch" from the leaking hydraulic fluid. Saveker testified that the system was "a bad accident waiting to happen."

Marco and Martinac argued that the vessel's design was not defective, that Saratoga Fishing had failed to maintain the fire suppression system or the hydraulic hoses, and that Saratoga Fishing had substantially altered and misused the hydraulic system.

Larry Grief, a marine architect, testified as an expert witness for Marco and Martinac. He stated that the hydraulic system on board the SARATOGA met well-established marine practice and was similar to those on almost every vessel he had been aboard. The hydraulic hoses, Grief noted, were designed with a safety margin of 6 to 1 over standard operating pressures. In Grief's opinion, the hydraulic system was not operating properly because of the modifications made by Saratoga Fishing. The addition of a 100-horsepower electric drive caused the hydraulic fluid to pass through the system at a higher velocity, leading to a corresponding increase in the temperature of the hydraulic fluid, which in turn caused rapid deterioration. Furthermore, the larger equipment (seine,

boom, and power block) installed by Saratoga Fishing required more hydraulic power, but the installation was not accompanied by any modifications in the hydraulic hoses.

The district court concluded that Marco and Martinac were strictly liable for the loss of the SARATOGA. The court found that the hydraulic system was defectively designed despite the fact that it met established marine practices. The placement of the hydraulic hoses in close proximity to the engine and turbocharger presented a known serious risk of fire and, the district court found, feasible design changes, such as the placement of a shield or barrier to isolate the hydraulic hoses from the engine and turbocharger, would have reduced the risk. The modifications made by Saratoga Fishing did not alter the chain of causation because they did not affect the design.

The court also found, however, that Saratoga Fishing was at fault due to its poor maintenance of the hydraulic system, its overuse of the system, and its failure to recognize the signs of imminent failure of the system. Saratoga Fishing's comparative fault reduced its recovery by two-thirds.

In a later ruling, the district court awarded damages to Saratoga Fishing in the amount of $452,326, one-third of the sum it determined to be Saratoga Fishing's total damages. The award included losses of the tuna catch, seine, skiff, fuel, equipment, the crews' personal losses, the cost of the rescue, and Captain Vargas' cash.

Not included in the award was the loss of any replacement parts that Saratoga Fishing installed on the vessel. The award also did not include the loss of the vessel's hull, which the trial court had decided pretrial was not recoverable from either defendant in an admiralty products liability action.

The court awarded prejudgment interest, which raised the total award to Saratoga Fishing to $734,940.38. Finally, the court awarded additional interest to Saratoga Fishing until the date of the final judgment at the rate of $153.09 per day.

II

We review the admiralty trial court's findings of fact for clear error, and its conclusions of law *de novo*. *Havens v. F/T Polar Mist*, 996 F.2d 215, 217 (9th Cir. 1993). The existence and extent of a duty are questions of law reviewed *de novo*, while proximate cause and whether such a duty has been breached are questions of fact reviewed for clear error. *Martinez v. Korea Shipping Corp.*, 903 F.2d 606, 609 (9th Cir. 1990).

We review *de novo* the legal conclusion that damages are available. *United States v. Timberland Paving & Constr. Co.*, 745 F.2d 595, 599 (9th Cir. 1984) ("[w]e review questions of law de novo"). Finally, we review for clear error a trial court's factual findings in support of an award for damages. *Bergen v. F/V St. Patrick*, 816 F.2d 1345, 1347 (9th Cir. 1987), *cert. denied*, 493 U.S. 871 (1989).

III

Saratoga's claims fall within the admiralty jurisdiction, as they arose on the high seas. 28 U.S.C. § 1333; *see Jerome B. Grubart, Inc. v. Great Lakes Dredge & Dock Co.*, 63 U.S.L.W. 4154, 4155-56 (U.S. Feb. 22, 1995). We apply, as the district court did, substantive admiralty law, which, absent a federal statute, is the general maritime law. *East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858, 864 (1986). The law of products liability, including strict liability,

is recognized as part of the general maritime law. *Id.* at 865; *Pan-Alaska Fisheries, Inc. v. Marine Constr. & Design Co.*, 565 F.2d 1129, 1135 (9th Cir. 1977).

In holding that a strict products liability action would lie in admiralty, we adopted the Restatement (Second) of Torts § 402A (1965) as "the law of products liability in this circuit" because it was "the best and most widely-accepted expression of the theory of strict products liability." *Pan-Alaska*, 565 F.2d at 1135. Section 402A provides as follows:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although
>
> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Under the doctrine of strict products liability, manufacturers and sellers of products are held liable because society considers them better able than individuals to bear the costs of injuries and damage resulting from defective products. *See* **W. Page Keeton et al., Prosser and Keeton on Torts** § 98, at 692-93 (5th ed. 1984) [hereinafter **Prosser & Keeton**] (manufacturers and sellers "have the capacity to distribute the losses of the few among the many who purchase the products"); *Greenman v. Yuba Power Prods., Inc.*, 59 Cal.2d 57, 377 P.2d 897 (1963); **Thomas J. Schoenbaum, Admiralty and Maritime Law** § 5-6, at 177 (1994) (policies underlying strict liability apply in admiralty).

A

Martinac and Marco argue, based on two theories, that the district court erred in concluding that they owed any duty to Saratoga Fishing. They contend first that Saratoga Fishing was a sophisticated commercial buyer and that imposition of a strict products liability duty in this context is unwarranted. Next, Martinac and Marco argue that Saratoga Fishing failed to establish that the vessel, specifically the hydraulic system, was without substantial change. Thus, they contend that under Restatement section 402A(1)(b), they had no duty to protect Saratoga Fishing from a defective condition unreasonably dangerous to it.[3]

---

[3]Marco and Martinac also argue that the trial court erroneously found that they had a duty to provide a "safe vessel." We agree that their duty was to provide a vessel that was not unreasonably dangerous to the user. In our judgment, however, the district court's choice of words in one finding does not undermine the propriety of its analysis of the appropriate nature of Marco and Martinac's duty.

Marco and Martinac raise interesting policy arguments for why commercial sellers should not owe a strict products liability duty to sophisticated commercial buyers of products such as fishing vessels. Many of the concerns animating strict products liability, including the ability of manufacturers and sellers to better absorb the costs of defective products, do not necessarily support strict products liability in this context. Indeed, private insurance on the part of the vessel's owner would, it is argued, provide a more effective economic allocation of risk. We have also recognized that section 402A of the Restatement "should be applied only when the purposes it seeks to serve dictate its application." *McKay v. Rockwell Int'l Corp.*, 704 F.2d 444, 447 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

[1] The question is not, however, an open one in this circuit. We have held a commercial seller of a maritime product strictly liable under Restatement section 402A in a factually similar case involving a presumably sophisticated commercial buyer. *Pan-Alaska*, 565 F.2d at 1134-37; *see also East River*, 476 U.S. 864-66, 871 (discussing application of strict products liability to "manufacturer in a commercial relationship"). Although we have not specifically considered the policy arguments raised here, we have yet to create an exception to strict products liability for certain sellers based on the commercial nature of the sale.[4] *See* Paul N. Wonacott, *Products Liabilities of Shipbuilders and Repairers*, 62 Tulane L. Rev. 465, 469 (1988) (liability for a defective product under section 402A

[4]In *McKay*, 704 F.2d at 447 n.4, we recognized those limited circumstances when strict products liability does not apply. They include unavoidably unsafe products, used products and services. We also added to that list in *McKay* that only in limited circumstances should a manufacturer be held strictly liable in tort for injuries to a service member in active duty caused by a design defect in military equipment. *Id.* at 447-48.

attaches in admiralty regardless whether "the accident-causing product is a structure uniquely designed to a particular owner's specifications"). Because many maritime transactions occur between commercial sellers and sophisticated buyers, the position advocated by Marco and Martinac would tend to eliminate what we have already accepted—that strict products liability is a part of the general maritime law.

Marco and Martinac's other argument regarding strict products liability duty is also unavailing. They misperceive the meaning of "substantial change" as defined by section 402A(1)(b). The Restatement section 402A provides that the product must "reach the user or consumer without substantial change in the condition in which it is sold." Thus, if a manufacturer's product is altered by a seller or other intermediary, the manufacturer might be immune from strict liability. *See* Restatement § 402A cmt. p. Once the produet has reached the "user or consumer," however, that element has been satisfied. *See Emerson G.M. Diesel, Inc. v. Alaskan Enter.*, 732 F.2d 1468, 1475 (9th Cir. 1984) (product must not be "altered or changed when it reached the consumer"), *overruled in part on other grounds by East River S.S. Corp. v. Transamerica Delaval, Inc.*, 476 U.S. 858 (1986).

[2] Any misuse or fault by the user or consumer could and indeed, in this case, did reduce the plaintiff's recovery. Restatement § 402A cmt. n; *Pan-Alaska*, 565 F.2d at 1138 (comparative fault concepts can be applied to strict products liability). Whether the plaintiff misused the product, or significantly altered the product so as to become an intervening, superseding proximate cause of the resulting loss may even relieve the manufacturer or seller from liability altogether, but that misuse or alteration does not relate to whether the manufacturer or seller had a duty to the consumer or user. The duty

exists if the product was in a defective condition at the time the consumer or user obtained the product. Because the hydraulic system retained the same design when Saratoga Fishing acquired the product from McDruga in 1974 as it did when Marco and Martinac installed the system, Marco and Martinac owe a duty to Saratoga Fishing regarding any design defect.

[3] In any case, the alterations made to the hydraulic system by Saratoga Fishing did not substantially alter the design of the system, which is what the district court found to be defective. The design of the system was the same on the day of the vessel's loss as it was when the SARATOGA left the shipyard.

B

Martinac and Marco argue that the district court erred in finding the design of the hydraulic system to be defective. They contend that the district court improperly applied a risk-utility test instead of a consumer or user expectations test to determine if the hydraulic system was defectively designed. Finally, Marco and Martinac argue, the district court misapplied the risk-utility test. We disagree with each of these contentions.

Admiralty courts use two methods to determine whether a product is defectively designed. The first method, drawn from Restatement section 402A comment i, provides that a product is defective if it is "dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." This is the consumer expectations test. *See* Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton** § 99, at 698.

Although utilized by many courts, this test has come under criticism because of several shortcomings. First, it allows a manufacturer or seller to escape liability when the unreasonable danger is open and obvious. *See* **Prosser & Keeton** § 99, at 698-99; **M. Stuart Madden, Products Liability** § 6.7, at 213-14 (1988). Second, it is unpredictable in application. *See* **Prosser & Keeton** § 99, at 699. Because of the weaknesses of this test, some courts have sought an alternative way to determine whether a product was defectively designed.

A second test evolved from Judge Learned Hand's balancing test in a negligence case, *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947). The risk-utility balancing test, in the context of a strict products liability action, weighs the utility of the product against the gravity of the danger. If, after considering the utility of the product, the economic and practical feasibility of alternative designs, and the gravity and likelihood of the potential harm, the factfinder determines that the risk outweighs the utility, the product is deemed defective or unreasonably dangerous.[8] *See Pavlides v.*

[8]In a design defect case, the terms "defective condition" and "unreasonably dangerous" arguably share a common meaning. *See Hagans v. Oliver Mach. Co.*, 576 F.2d 97, 99 n.4 (5th Cir. 1978) (stating that "[a]s used in the Restatement" the two terms are synonymous); *see also* Carl T. Bogus, *Pistols, Politics & Products Liability*, 59 U. Cin. L. Rev. 1103, 1107-08 (1991) (arguing that in design defect cases, unreasonable danger is synonymous with defective condition); David P. Griffith, Note, *Products Liability—Negligence Presumed: An Evolution*, 67 Tex. L. Rev. 851, 859-60, 860 n.50 (1989) (citing sources supporting proposition that "defective" and "unreasonably dangerous" are synonymous and will lead to the same conclusion in design defect cases). Although we need not hold that the two terms will be synonymous in all cases, we use the terms interchangeably here. In other words, under either the consumer expectations test or the risk-utility test, a product that is deemed unreasonably dangerous will also be deemed to be in a defective condition. Conversely, a product in a defective condition must also be unreasonably dangerous.

Galveston Yacht Basin, Inc., 727 F.2d 330, 337 (5th Cir. 1984) (applying risk-utility test in admiralty case); *Borel v. Fibreboard Paper Prods. Corp.*, 493 F.2d 1076, 1078 (5th Cir. 1973) (nonadmiralty case), *cert. denied*, 419 U.S. 869 (1974); Wonacott, *Shipbuilder Liability*, at 469; **Prosser & Keeton** § 99, at 699-700.

A recent law review article noted that "[a]dmiralty decisions reveal that no predictable fact pattern or particular liability theory will dictate application of any one test; so it is not believed possible to identify a consistently preferred admiralty standard." Wonacott, *Shipbuilder Liability*, at 471. The language of section 402A neither compels nor precludes the application of either test; it merely provides for an examination of whether a product is unreasonably dangerous.

We have not indicated which test or tests should be applied in admiralty cases in this circuit.[6] The district court rejected the pure application of the "so-called consumer's expectations" test in comments g and i of Restatement section 402A. Instead, the court applied the risk-utility test, citing the Fifth Circuit's decision in *Pavlides*. The district court proceeded to examine the risk and utility of the design along with the feasibility of alternative designs.

[6]Marco and Martinac rely on *McCune v. F. Alioto Fish Co.*, 597 F.2d 1244 (9th Cir. 1979) and *Complaint of Diehl*, 610 F. Supp. 223 (Idaho 1985), to support their argument that only a consumer expectations test should be applied in admiralty. Neither case supports that proposition. *McCune* merely affirmed, without discussion, a district court's finding that a product was not defective. *Diehl*, which is a district court decision, did apply a consumer expectations test in the context of an admiralty case, but it did not discuss, and it certainly did not preclude, the applicability of other tests.

[4] We agree with the district court regarding the appropriateness of applying the risk-utility test in this case. If the consumer expectations test had been applied, the danger posed by the placement of the hoses of the hydraulic system in close proximity to the hot engine and turbocharger surfaces would likely be deemed open and obvious, especially to a purchaser or user of a fishing vessel. We are not satisfied with the possibility that a product with a design having high risk and limited utility, and a design that has other feasible alternatives, could be found not to be unreasonably dangerous or defective merely because a consumer, using the product in a foreseeable way, could recognize the danger.[7] As the district court correctly recognized, the risk-utility test provides a superior yardstick of whether a product is unreasonably dangerous or defective.

[5] We note that a preliminary draft of the Restatement (Third) of Torts by the reporters for the American Law Institute relies on a risk-utility analysis for deciding design defect cases. *See* Restatement (Third) of Torts: Products Liability § 2 (Tentative Draft No. 1, 1994). The tentative draft divides defective product cases into three categories: manufacturing defect cases, design defect cases, and inadequate warning cases. Proposed section 2(b) provides that "[a] product is defective in design when the foreseeable risks of harm posed by the product could have been reduced by the adoption of a reasonable alternative design by the seller . . . and the omission of the alternative design renders the product not reasonably safe." *Id.* § 2(b). Under the proposed Restatement, the consumer expectations test no longer "constitute[s] an independent standard for judging the defectiveness of product designs." *Id.* § 2(b) cmt. e. Instead, the focus is on the reason-

[7]Neither party argued that the product in this case was an unavoidably unsafe product. *See* Restatement § 402A cmt. k.

ableness of the design and the plaintiff's ability to prove that a reasonable alternative design would have reduced foreseeable risks of harm. *Id.* § 2(b) cmt. c. Although we need not, and do not, adopt the formulation of the Restatement (Third) at this time, it provides support for our holding that a focus on the design's benefits, risks, and feasible alternatives is a better approach to examining an alleged design defect. *See id.* § 2(b) cmt. c, reporters' note at 41 ("[s]cholarly commentary agrees overwhelmingly with . . . the risk-utility approach.").

[6] Our approval of an application of the risk-utility test in this case does not necessarily preclude future admiralty plaintiffs from showing a design defect using the consumer expectations test. In *Pan-Alaska*, we adopted the Restatement § 402A as the law of this circuit. That section includes comment i, which allows a consumer to show that a product was unreasonably dangerous in a way not contemplated by the consumer. Other jurisdictions permit a plaintiff to show a product design defect under either approach. *See, e.g., Barker v. Lull Engineering Co.*, 20 Cal.3d 413, 432, 573 P.2d 443 (1978); *Caterpillar Tractor Co. v. Beck*, 593 P.2d 871, 884 (Alaska 1979). Given our traditional discretion in admiralty, *see East River*, 476 U.S. at 871, we conclude that giving plaintiffs such a choice is appropriate.

Marco and Martinac next maintain that the district court improperly applied the risk-utility test because it failed to balance the various factors and failed to find that a feasible alternative design would have prevented the fire. Marco and Martinac also argue that the district court erred in finding the design unreasonably dangerous. We disagree.

The district court examined the risk from the design of the hydraulic system, and found it extremely high. Saratoga Fishing presented evidence that hydraulic hoses can fail for a variety of reasons and that any failure under the currently designed system would lead to a serious fire. The district court considered the utility of the current design, but was persuaded that an alternative design, namely a metal shield placed to isolate the hot surfaces of the engine and turbocharger from the hydraulic hoses, would have led to less "harmful consequences."

The district court did not rely on the mere technical possibility of a safer design. *See Glover v. BIC Corp.*, 987 F.2d 1410, 1422-23 (9th Cir.), *amended*, 6 F.3d 1318 (9th Cir. 1993). Rather, Saratoga Fishing presented evidence regarding specific feasible improvements in design. Indeed, Mr. Martinac himself testified that Martinac "now puts up a sheet metal barrier" in vessels. A barrier could have isolated the hydraulic hoses from the turbocharger and engine surfaces, while maintaining the utility of the system. Although the district court found that Marco and Martinac's failure to use such a shield at the time of construction did not violate any industry rules or standards, it found the design unreasonably dangerous and defective because the design included a high risk of danger and there was a feasible alternative.

Many qualified experts testified on both sides regarding the efficacy of the hydraulic system's design and the feasibility and safety of other designs. The parties disagree on whose experts and evidence deserve credence, as the experts disagreed on many critical issues, including whether the design was defective. We must accord due deference to the district court's consideration of the experts' testimony and the court's findings regarding that testimony. *Anderson v. City of Bessemer City*, 470 U.S. 564, 573-75 (1985) (citing Fed. R. Civ. P.

52(a)) ("[w]here there are two permissible views of the evidence, the factfinder's choice between them cannot be clearly erroneous."). The district court correctly applied the risk-utility test in finding the design of the hydraulic system defective. Its findings are not clearly erroneous.[8]

C

Marco and Martinac argue that the district court erred in finding that Saratoga Fishing's misuse and alteration of the hydraulic system was not a superseding cause of the accident and subsequent loss of the vessel. Again, we disagree.

Any design defect must be shown to have contributed to, or caused the accident that led to the injury. *Matthews v. Hyster Co.*, 854 F.2d 1166, 1168 (9th Cir. 1988); **Prosser & Keeton** § 102, at 710-11 ("product defect under strict liability must be a proximate cause of claimant's injury"). Here, the presence of the hydraulic hoses near the hot engine and turbocharger surfaces without any effective shield was undoubtedly a proximate cause of and contributed to the fire that resulted in the vessel's loss. The district court found that this was the case, and this finding is not clearly erroneous.

[8]Although Saratoga Fishing contends that the district court also found Marco and Martinac negligent, the district court's findings and conclusions indicate that the only basis for its holding was strict products liability. The court's mention of negligence in a few places is not sufficient to establish a finding of liability. If the district court did intend to reach a negligence decision, it did not set forth negligence law or make findings regarding that law. Further, it did not address the critical issue in negligence, the fault of the defendant. It addressed only the unreasonably dangerous nature of the product. Thus, any conclusion of negligence is unsupported.

Notwithstanding the existence of proximate cause, a manufacturer of a defective product can still be relieved of liability if some unforeseeable misuse or alteration occurred rising to the level of a superseding cause. **Prosser & Keeton** § 102, at 711. Marco and Martinac argue that such unforeseeable conduct occurred here.

They initially rely on a district court finding where the court purportedly stated that Saratoga Fishing's actions were a "precipitating cause" of the vessel's loss. Although the district court did make this finding, Marco and Martinac take it out of context. The court actually found that Saratoga Fishing's poor maintenance, misuse, and modifications to the hydraulic system "all contributed in some part to cause and bring about the catastrophic fire which ignited in the upper engine room . . . and was the precipitating cause of the vessel's loss . . . ." As this longer excerpt reveals, the court found that the fire was the precipitating cause of the loss. This is, of course, obvious. The court did not find that Saratoga Fishing's actions were a precipitating cause of the fire, rather it found that they were a contributing, or "substantial cause[ ]" of the fire.

[7] The district court did not find that Saratoga Fishing's misuse and alteration of the hydraulic system amounted to a superseding cause of the accident. The district court could have, but did not, find Saratoga Fishing's misuse to be unforeseeable.[9] *Cf. Kay v. Cessna Aircraft Co.*, 548 F.2d

[9]There was some controversy at trial over a water shield that was ostensibly installed over the turbocharger at the time the hydraulic system was installed on the SARATOGA. The district court was unable to determine whether this shield had been removed. It found however, that even if this shield had been in place, it would not have prevented the fire from igniting because it did not adequately cover the surfaces of the turbocharger and engine or isolate the hydraulic hoses from the surfaces. These findings are not clearly erroneous, and thus the presence or absence of the water shield does not affect Martinac and Marco's liability or affect whether Saratoga Fishing's actions constituted a superseding cause of the accident.

1370, 1372-73 (9th Cir. 1977) (plaintiff may recover if product is used in foreseeable, even if unintended use). The district court instead decided that hydraulic hose failure through either misuse, poor maintenance, or other conduct was foreseeable to Marco and Martinac, and that it would operate to reduce Saratoga Fishing's recovery but not to supersede Marco and Martinac's design defect as a proximate cause of the loss. This finding was not clearly erroneous.

[8] Marco and Martinac point to the alterations in the hydraulic system as examples that the system was modified substantially. The modifications, however, did not alter the design to the point where they superseded the design as a proximate cause of the fire.

D

Saratoga Fishing argues that the district court erred in reducing its award of damages by two-thirds based on the court's findings that it was also at fault for altering, misusing, failing to properly maintain, and ignoring the imminent failure of the hydraulic system. We agree with the district court.

[9] We have held that the concepts of "comparative fault (i.e., contributory negligence) . . . can be applied to the doctrine of strict products liability." *Pan-Alaska*, 565 F.2d at 1138. Under comparative fault principles, a party's blameworthy conduct that contributes to the proximate cause of the loss or injury will be compared to the defendant's liability and act to reduce the plaintiff's award of damages. *Id.* at 1139-40. As we stated: "It comes down to this: the defendant is strictly liable for the harm caused from his defective product, except that the award of damages shall be reduced in proportion to the plaintiff's contribution to his own loss or injury." *Id.* at 1139.

The district court found that Captain Vargas failed to properly maintain the hydraulic system. In an effort to increase the speed and power of the system, Vargas authorized enlarging the size of the seine, increasing the size of the power block, and increasing the velocity of the hydraulic flow and power to the machinery and equipment. This increased velocity raised the temperature of the hydraulic fluid and resulted in increased deterioration of the component parts of the hydraulic system, including the hydraulic hoses.

The district court also found that the engineers on board informed Captain Vargas that the hydraulic system was "overworked, wearing out and prone to an increasing number of failures." Vargas nonetheless continued to operate the system in excess of design pressures and temperatures and deferred remedial measures. Most significantly, the district court found that on January 16, the hydraulic hose that eventually failed was observed by the Chief Engineer and his assistant to be "leaking or weeping at the coupling."[10] Despite being informed of the problem with the hose, Captain Vargas continued to operate the hydraulic system. The district court found that this created an "unreasonable risk that the hose would fail," causing hydraulic fluid to come in contact with the surface of the engine.

[10] The poor maintenance of the system, the modifications to the system, and the use of the system known to have a

[10]Although Chief Engineer Nielson testified that he did not consider the defective hose to be dangerous, the district court found that the engineer must have been aware that it needed replacing and that the hydraulic system should not be operated. The district court also rejected Nielson's testimony that he was unaware of a risk of danger.

defective hose all contributed to the fire that caused the sinking of the vessel. The district court found that the conduct of those who manned the SARATOGA "border[ed] on irresponsible." The district judge is in the best position to weigh the evidence and apportion fault. *Alkmeon Naviera, S.A. v. M/V Marina L*, 633 F.2d 789, 796 (9th Cir. 1980). The district court's determination is not clearly erroneous and the apportionment of two-thirds liability to Saratoga Fishing will not be disturbed.

Saratoga Fishing next argues that Marco and Martinac failed to establish the standard of care of a prudent tuna boat operator. We reject this argument. Marco and Martinac presented substantial evidence concerning proper maintenance and care of a fishing vessel's hydraulic system. That is more than sufficient to establish a standard of care.

IV

We next address the subject of damages. The district court awarded Saratoga Fishing $452,326, which sum equals one-third of the combined value of the following items: the tuna catch, net, skiff, fuel, assorted equipment, crew losses, rescue costs, and cash. The district court declined to award damages for the value of replacement parts and the vessel's hull. Marco, Martinac, and Saratoga Fishing raise various objections to the award. We reject each of the arguments and agree with the district court's determinations.

[11] In *East River S.S. Corp v. Transamerica Delaval*, 476 U.S. 858 (1986), the Supreme Court recognized a significant limitation to its decision to adopt the law of strict products liability to admiralty. The Court drew a distinction between damage caused to the "product itself" and damage to a "person or other property." *Id.* at 870. When the product itself

is damaged, the "resulting loss is purely economic" and losses such as "repair costs, decreased value, and lost profits . . . essentially [involve] the failure of the purchaser to receive the benefit of its bargain—traditionally the core concern of contract law." *Id.* At least in the commercial context, the Court stated that damage to a product should be sought by plaintiffs through a contract or warranty claim. A cause of action for damages in a products liability claim in admiralty is available only for an injury to persons or "other property." *Id.*

We have not yet had the opportunity to further define the contours of "other property." The Fifth Circuit has stated that "the finished vessel delivered by the manufacturer to the purchaser is the product—the object of the contract . . . ." *Nicor Supply Ships Assoc. v. General Motors*, 876 F.2d 501, 505 (5th Cir. 1989) (quoting *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925, 928-29 (5th Cir. 1987)). Because the equipment at issue in *Nicor* had been installed on the vessel after it had been delivered to the purchaser, the Fifth Circuit concluded that the equipment was not a product of the bargain between manufacturer and purchaser, and thus was "other property" for which damages could be recovered. *Id.*

[12] We agree with the Fifth Circuit's approach. Defining the product as the object of the contract between the manufacturer and purchaser comports with the language and policy of *East River*. A product liability plaintiff is not able to recover damages for economic losses resulting from the loss of the vessel, but can recover damages for items added to the vessel by its user. Because the *East River* court focused primarily on the role of warranty and contract law as the reason for limiting recovery of product liability damages, it is logical that when items are added to a vessel outside the scope of any warranty of contract between the initial purchaser and manufacturer, they are "other property."

Appendix D

A

[13] Marco and Martinac argue that most of the damages in the case, specifically the skiff, net, fuel, spare parts and miscellaneous equipment, were attributable to the product itself.[11] We disagree. Again quoting the Fifth Circuit, additions to a vessel should be considered other property "separate from the product that the manufacturer *originally* sold, if the distinction enunciated in *East River* between a 'product' and 'other property' is to have any meaning." *Nicor*, 876 F.2d at 506 (emphasis added). The key was whether the items were "part of the contract under which the vessel was sold." *Id.* Although all the aforementioned components were integral to the operation of the vessel, they were not part of the vessel that Martinac sold to McDruga in 1972. They were added later. Including these items as part of the "product" would undermine the "other property" exception contained in *East River*. Under that rationale, the product would envelop everything else useful in the operation of the vessel, which is not consistent with the balance struck by the Supreme Court. The items for which the district court awarded damages are inherently different from those component parts that were part of the vessel when it was delivered. The component parts were presumably accounted for in the contract to build the vessel. The district court correctly concluded that Saratoga Fishing was entitled to receive damages for the loss of those items including the net, skiff and miscellaneous equipment that were incorporated into the SARATOGA after the vessel was sold to McDruga. Furthermore, there is no clear error in the district court's findings regarding the amount of these damages.

[11]The argument made by the defendants that some of the damages awarded were "economic loss" damages prohibited by *East River* is not correct. The district court awarded no damages based on "repair costs, decreased value, and lost profits." 476 U.S. at 870.

Appendix D

Marco and Martinac next argue that an award of damages for the tuna catch was unjustified. They contend that the lost catch was a nonrecoverable pure economic loss under various theories: first, because the lost catch was a work in progress; second, because the lost catch was equivalent to damaged cargo; and third because it was similar to failed or damaged crops. We disagree.

[14] The tuna catch that was destroyed was different than cargo because it was not being shipped from one site to another pursuant to a commercial agreement. It was new property on board the SARATOGA that belonged to the vessel's owner. The tuna was also not a work in progress as it had substantial value after being caught. The district court correctly reduced the value of the tuna by accounting for fuel costs and Panama Canal toll charges, and accurately computed the value of the tuna lying in the holds of the SARATOGA. Finally, the cases involving damaged crops are agricultural cases and are not helpful in the context of admiralty. We conclude that the tuna catch was not an economic loss, but was a loss of other property. The district court did not abuse its discretion in awarding damages for the tuna catch.

Marco and Martinac lastly contend that the district court erred in awarding Saratoga Fishing the value of Captain Vargas' lost currency because it was duplicative of sums awarded under the category of the lost crew property. The district court found that Vargas' testimony was "not effectively refuted" and was "credible." Marco and Martinac have shown insufficient evidence that the district court's findings were clearly erroneous. We will not disturb them.

B

Saratoga Fishing appeals the district court's refusal to award the value of replacement equipment installed in the vessel. It also argues that the district court erred in not permitting it to include the value of the vessel's hull in its damages sought from Marco.

[15] The district court concluded that replacement parts should not be recoverable as "other property" under *East River*. The court stated that permitting recovery would lead to the absurd result that the shipbuilder's liability would grow as the performance of the product's relationship to the shipbuilder decreased. We agree. Because a product may have any number of components replaced with spare parts in the ordinary course of events, viewing these parts as "other property" would lead to absurd results. Such results would be contrary to the policies of *East River*, where the Supreme Court expressed its intention to exclude damages to the product itself from tort law and leave the injured party to remedies in the law of contract and warranty. 476 U.S. at 871-72; *see Exxon Shipping Co. v. Pacific Resources, Inc.*, 835 F. Supp. 1195, 1200 (D. Haw. 1993) (prohibiting recovery of cost of replacement parts in admiralty products liability action).

Saratoga Fishing lastly seeks damages from Marco (not Martinac) for the loss of the vessel itself. This argument is based on two propositions: first, that the approach to damages in *East River* should not apply to fishermen; and second, that for a component manufacturer such as Marco, the only "product" is its hydraulic system and that the vessel is "other property." Neither argument has merit.

Saratoga Fishing relies on footnote 5 in *East River*, in which the Supreme Court observed that it had at times applied

a more protective approach in some admiralty contexts for fishermen, and that no fishermen were involved in that case. Even if that footnote reflected an exception to the rules set forth in *East River*, it is not applicable here. Saratoga Fishing is a company that owned an ocean-going tuna fishing vessel; there are no individual fishermen involved in this litigation. In any case, the only court that has considered the effect, if any, of the footnote, applied the *East River* damages rules without exception to a case involving plaintiffs who were fishermen. *McConnell v. Caterpillar Tractor Co.*, 646 F. Supp. 1520, 1525 (D.N.J. 1986).

Also without merit is Saratoga Fishing's argument that the vessel should be deemed "other property" relative to Marco because Marco designed a component part of the vessel. The Fifth Circuit has rejected a similar claim. In *Shipco 2295, Inc. v. Avondale Shipyards, Inc.*, 825 F.2d 925, 928 (5th Cir. 1987), *cert. denied*, 485 U.S. 1007 (1988), the Fifth Circuit rejected a damages claim against the designer of a component part, observing that there is "no rational reason to give the buyer greater rights to recover economic losses for a defect in the product because the component is designed, constructed or furnished by someone other than the final manufacturer." *Id.* at 929.

[16] This rationale is sound. Saratoga Fishing bargained for a fishing vessel. That is the product. *See Nicor*, 876 F.2d at 505 (finished vessel "delivered by the manufacturer to the purchaser" is the product). The hydraulic system is an integral part of the product. Seldom does one company design and build all component parts for an integrated product such as a fishing vessel. Permitting recovery from Marco for the vessel's hull would undermine the policy of *East River*—namely, that contract and warranty law should cover such losses, while tort law should be reserved for "other property."

C

Marco and Martinac argue that the district court erred in awarding prejudgment interest to Saratoga Fishing. They contend that Saratoga Fishing delayed filing a claim for almost two years after the vessel's loss and that Saratoga Fishing further delayed the litigation during a dispute over an attorney's conflict of interest.[12]

"In admiralty, prejudgment interest must be granted unless peculiar circumstances justify its denial." *McKay v. Rockwell Int'l Corp.*, 704 F.2d 444, 463 (9th Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984). The determination of whether peculiar circumstances exist is left to the district court's sound discretion. *Id.* at 464.

Here, the district court concluded that this case was not "sufficiently peculiar or exceptional to justify departure from the general rule." Saratoga Fishing's claim was filed within the statute of limitations; thus, any delay was certainly not peculiar or unusual. The attorney conflict is also not an unusual occurrence. There is insufficient reason to disturb the district court's exercise of its sound discretion in awarding prejudgment interest.

Marco and Martinac also object to the district court's purported computation of postjudgment interest as inconsistent with the statutory mandate of 28 U.S.C. § 1961. Saratoga Fishing correctly points out, however, that the district court did not award postjudgment interest. It awarded additional

[12]Although Marco and Martinac initially objected to an award of prejudgment interest because of the high degree of Saratoga Fishing's comparative fault, they abandoned that ground on appeal.

prejudgment interest at the rate of $153.90 per day from the date of the damages findings and conclusions, June 1, 1993, until the date of final judgment, August 27, 1993. We find no error.

Finally, Saratoga Fishing is entitled to a further award of interest pursuant to 28 U.S.C. § 1961 from the date of entry of judgment until payment is made.

V

We are persuaded that the district court, having heard from all the experts and witnesses, did not err in deciding the issues of liability and damages. Marco and Martinac will pay their share because of their defectively designed hydraulic system, but Saratoga Fishing's award will be substantially reduced because of its failure to properly maintain and operate that system.

AFFIRMED

APPENDIX E — FINDINGS ON LIABILITY MADE BY THE DISTRICT COURT ON MAY 15, 1993

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

Case No. 87-1691-F

SARATOGA FISHING COMPANY,

Plaintiff

vs.

J. M. MARTINAC & COMPANY, et al.,

Defendants.

FINDINGS AND CONCLUSIONS

Having reviewed the transcript of the findings and conclusions attached hereto, IT IS ORDERED the transcript be deemed my findings of fact and conclusions on liability.

DATED:

s/ James M. Fitzgerald
James M. Fitzgerald
United States District Judge

Appendix E

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

Case No. 87-1691-F
Civil

SARATOGA FISHING COMPANY,

Plaintiff,

vs.

J. M. MARTINAC & COMPANY, et al.,

Defendants.

TRANSCRIPT OF FINDINGS AND CONCLUSIONS
Taken in San Diego, California
March 18, 1993

BEFORE THE HONORABLE JAMES M. FITZGERALD

Echo Reporting
7046 Enders Avenue
San Diego, California 92122
(619) 453-3325

Appendix E

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA

Case No. 87-1691-F

San Diego, California

Thursday,
March 18, 1993

SARATOGA FISHING COMPANY,

Plaintiff,

vs.

J. M. MARTINAC & COMPANY, et al.,

Defendants.

TRANSCRIPT OF FINDINGS AND CONCLUSIONS
BEFORE THE HONORABLE JAMES M. FITZGERALD
UNITED STATES DISTRICT JUDGE

APPEARANCES:

For the Plaintiff: (Not present.)

For the Defendants: (Not present.)

Transcript Ordered by: HON. JAMES M. FITZGERALD

Appendix E

Court Recorder: Nancy Cablay
United States District Court
940 Front Street
San Diego, California 92189

Transcriber: Mary Lou Lohr
Echo Reporting
7046 Enders Avenue
San Diego, California 92122
(619) 453-3325

Proceedings recorded by electronic sound recording transcript produced by transcription service.

[1] SAN DIEGO, CALIFORNIA
TUESDAY, MARCH 18, 1993

—oOo—

(Call to order of the Court.)

THE COURT: We'll begin with the findings and conclusions on the liability issues relating to Saratoga Fisheries versus Martinac Shipyards and Marco.

The findings and conclusions will be taken from notes, memoranda and excerpts of authority which I have reviewed and, after the findings and conclusions have been placed of record, the original transcript of the findings and conclusions will be filed with the clerk of the court for record.

I'd like a copy of the findings and conclusions to go to Judge Thompson who has managed the case up until it was assigned to

me for trial, and I would like a copy so that I may address any post-trial motions.

Parties may, of course, order copies of the transcript or may copy the transcript provided it has once been filed with the clerk of the court.

I'll begin now with the findings which will be numbered, followed in general by the conclusions. Each finding identified by number will be separately set out and will be separated by double spacing. Quotes, and I shall refer to quotes from time to time, shall be single-spaced in the findings or conclusions.

[2] FINDINGS

(1) The *Saratoga*, a tuna fishing vessel, was constructed at the Martinac Shipyard, Seattle, Washington. The vessel was built in 1971 on order for and old-time fisherman, Joseph McDruga, and it was to be the third tuna boat built for him by Martinac. At least part of the machinery installed aboard the *Saratoga* was according to his choice.

The hydraulic drive powering the power block and winches and other machinery on the *Saratoga* was a D333 Caterpillar engine connected to a MARCO hydraulic system.

The D333 Cat was considered at the time to be a fine diesel engine when operated within its capabilities.

(2) Commercial tuna fishing in earlier times had been done with poles, fishing lines and hooks fished from the deck of the boat by a crew.

As the tuna fishery evolved, nets or seines were put aboard boats which enabled the taking of large quantities of fish. Power blocks and winches necessary to purse the seine or net or to brail the fish and to take the seine aboard after completion of a set were installed in tuna boats.

(3) MARCO Seattle was in the business of [3] providing marine equipment and marine systems to commercial fishing fleets and MARCO Seattle had designed a hydraulic system to operate the machinery and equipment used in tuna fishing operations.

(4) Martinac Shipyards often installed MARCO products, machinery and MARCO hydraulic systems in construction of tuna vessels. Martinac Hull 188 became the *Saratoga* owned by Joseph McDruga.

(5) After consultation with Joseph McDruga or his representatives, Martinac contracted with MARCO Seattle for a MARCO hydraulic system including pumps, pump drives, control valves, winches, pressure gauges and a Caterpillar D333 diesel engine for the *Saratoga*.

(6) The Caterpillar engine had been manufactured by Caterpillar Tractor, sold to Northern Commercial Marine in Seattle and then to MARCO Seattle. The evidence at trial persuaded me that Caterpillar had taken no part in the design of the hydraulic system installed on the *Saratoga* and that the engine as sold was not defective either in manufacture or design.

I concluded that Caterpillar should not be required to contribute in any way to any loss claimed in [4] this trial.

(7) The installation of the MARCO hydraulic system on the *Saratoga* was done at the Martinac Shipyard according to the drawings provided by MARCO. After the hydraulic system was installed, MARCO had agreed to inspect the installation of the system on the *Saratoga*, to determine whether the hydraulic system had been properly installed and to make certain the equipment operated in accordance with the hydraulic system design.

MARCO charged and was paid a fee for performing these contractual obligations. MARCO also prepared an instruction manual containing hydraulic circuit diagrams, detailed parts lists and breakdowns.

(8) The *Saratoga* was launched in January 1972 and underwent sea trials in Puget Sound. Joseph McDruga and his representatives including Manuel Vargas attended and, although MARCO representatives were aboard during the sea trials, the MARCO people were primarily observers.

Manuel Vargas as McDruga's representative requested Martinac Shipyards to reposition some cleats on the *Saratoga* and to change the placement of the hoist for the speedboats. The McDruga representatives were not marine designers, but worked aboard tuna vessels as [5] engineers or crew.

After the sea trials were completed, the McDruga captain and crew boarded the *Saratoga* in Puget Sound and brought her to San Diego where net trials would customarily have taken place.

MARCO representatives usually attended the net trials for the purpose of monitoring the hydraulic system, equipment and machinery, or to make any modifications or repairs.

(9) However, in this instance, net trials were not undertaken in San Diego at that time. A quota system had been adopted in the tuna fishery, and it was necessary to ready the *Saratoga* for fishing operations in order for the *Saratoga* to obtain a share of the quota.

Manuel Vargas went aboard the *Saratoga* in San Diego as captain and took the vessel to Panama where a seine or net and other fishing equipment were put aboard the *Saratoga* and, when properly equipped, she put to sea ready to fish in order to qualify for a share of the authorized quota.

(10) Later, when the *Saratoga* returned from its initial fishing voyage to San Diego, National Pump and Injector performed warranty work on the MARCO hydraulic [6] system by making adjustments or corrections to the system.

The warranty work done by NPI was on account from MARCO Seattle and had been authorized to be done by NPI at MARCO's expense.

Often during net trials, MARCO personnel attended and performed warranty work including adjustments to the hydraulic system.

(11) In March of 1974, the *Saratoga* was purchased from Joseph McDruga's fishing company by Vargas Fishery, a company of which Manuel Vargas was then principal owner and officer. At the time the *Saratoga* was acquired by Vargas Fishery, the vessel carried a full stock of equipment, spare parts and tools.

(12) Vargas knew the *Saratoga* well and no representation as to the fitness or condition of the vessel was offered or

requested. Vargas at the time of sale was fully satisfied in the condition of the vessel including its hydraulic drive system.

The *Saratoga* when purchased by Vargas Fishery was equipped for tuna fishing with five speedboats, outboard motors, a purse skiff, a seine or net, two sideband radios, radar and other electronic equipment, a VHF direction finder and a 42-inch power block.

[7] (13) Manuel Vargas continued as captain to fish the *Saratoga* until 1979. In that year Vargas became captain of another vessel and his son-in-law, Arthur Ferreria, became captain of the *Saratoga*.

In late 1983, the *Saratoga* was tied up at a dock for four or five months. In January 1984 Vargas again became captain of the *Saratoga*. The vessel was at that time in poor condition, and Vargas spent considerable amounts of money to improve the vessel's condition and machinery to bring her, according to his terms, back up to what she once was.

From January 1984 until the loss of the *Saratoga* in January 1986, Vargas estimated that he spent $175,000 on the vessel, her machinery and equipment.

(14) A number of modifications were made to the machinery and equipment originally installed on the vessel during the period from January 1984 until the time she was lost. The net size was increased; a single and double winch were mounted on the boom; a new boom with larger hydraulic hoses replaced the boom which had been originally placed board the vessel. A larger power block of 48 inches was installed. Larger cartridges were put into the Vickers pumps driven by the

hydraulic drive, and a 100-horsepower electric drive and pump were instal!ed to increase power [8] and flow in the hydraulic system in addition to the original 190-horsepower D333 Caterpillar engine.

(15) On December 23, 1985, the *Saratoga* came to Panama from a fishing voyage. The turbocharger on the in engine had failed, and repair of the turbo was necessary. Captain Vargas left the vessel while it was undergoing repair in Panama to spend the holidays with his family.

(16) The *Saratoga* departed Panama on January 8, 1986 to return to the fishing grounds. During fishing operations some 200 miles off the Gallapagos Islands, at approximately 6:00 p.m., January 16, 1986, a fire ignited in the upper engine room when a hose ruptured or released from the coupling attached to the pump.

(17) Within minutes the fire expanded into the lower engine room. Efforts were made by the chief engineers and others of the crew to suppress the fire, but Captain Vargas concluded after 10 to 20 minutes that efforts to put the file out were futile, and he ordered the *Saratoga* abandoned.

The crew quickly boarded into the first skiff and within a few hours were rescued by the *Chiriqui II*. [9] The next morning, January 17, 1986, shortly after 8:00 a.m., the *Saratoga* sank.

(18) The claimant in this maritime case is Saratoga Fisheries. The respondents are MARCO Seattle and Martinac Shipbuilding. The claim is in tort for loss of property. Other claims have been disposed of.

(19) According to David Saveker, a well qualified naval architect, the MARCO hydraulic drive system, in his expert opinion, incorporated an unsafe design and, according to his words, was an accident waiting to happen.

According to Saveker, the hoses and fittings in hydraulic systems are prone to failure, and it is not enough to rely upon maintenance of the system or fire suppression to accomplish a safe design.

Saveker found that MARCO had failed to do a hazard analysis or to examine failure modes at the time the MARCO hydraulic system was designed.

(20) Larry Grief, a qualified marine architect, is president of a private company which designs, among other things, hydraulic systems, electrical systems and the like for commercial vessels. His company has designed [10] hydraulic systems for tuna vessels.

Grief had examined the plans and specifications of the *Saratoga* including the hydraulic system, the CO_2 system and the piping and water cooling systems installed aboard the *Saratoga* at the Martinac Shipyard. He had reviewed numerous depositions and statements of former crew members on the *Saratoga*.

(21) On the basis of his examination and investigation, Grief formed the opinion that, at the time the hydraulic system was installed on board the *Saratoga*, the system as designed met well established marine practice and all requirements for commercial or naval vessels.

Indeed, Grief testified that the hydraulic system as designed and installed aboard the *Saratoga* was similar to hydraulic systems on virtually every vessel he had been aboard.

(22) There's no doubt Grief had been aboard and is extremely knowledgeable about the construction of commercial vessels and the equipment or machinery installed on such vessels. He served in the Coast Guard in a number of positions. He was chief engineer on a Coast Guard cutter off Vietnam during the Vietnam War, and he has served as a Coast Guard inspector of commercial vessels.

[11] Grief has attended Coast Guard training programs and shipboard damage control, firefighting and fire suppression. Due to his varied experience as a Coast Guard officer and his participation in the construction and inspection of commercial vessels, Grief also had a good deal of knowledge about Coast Guard regulations and the application of those regulations to commercial vessels including tuna vessels.

He's also familiar with industry trade rules such as those published by the American Bureau of Shipping.

(23) After examining the plans, specification and drawings of the MARCO hydraulic system, Grief found the flow rates and pressures as designed for the system well thought out. Sufficient information was found in the documents to permit analysis of the capabilities and reliability of the hydraulic system.

(24) At the time the *Saratoga* was constructed in the Martinac Shipyard, it was recognized and accepted within the commercial shipbuilding industry that the isolation of all flammable or combustible liquids in the engine room was not possible.

Appendix E

Diesel oil, a flammable liquid, must be brought to the engine. Hoses which carry fluids are sometimes [12] attached directly to the engine or in close proximity to the engine. Metal piping carrying fluids is subject to failure in much the same way as are hoses. Metal piping may fail at connections or in fittings.

The solution adopted by the commercial shipbuilding industry to reduce risks posed by flammable or combustible liquids in proximity to engines was to design into marine systems or components a safety factor of 4 to 1.

(25) MARCO, in keeping with the industry practice, specified components in the MARCO hydraulic system in full compliance with the prevailing standards at the time, but MARCO also increased the safety factor on hydraulic hoses by specifying the hoses to meet 3,000 psi pressures, thus increasing the safety factor over and above that accepted by the industry.

The velocity of the flow designed within the MARCO hydraulic system was in keeping with industry standards aimed at maintaining temperatures of hydraulic fluid at 135 degrees or below.

(26) At the time the *Saratoga* was built in the Martinac Shipyard, the hydraulic design provided by MARCO and installed by Martinac Shipyard met well established [13] marine practice.

(27) Grief's testimony on these issues was credible and reliable. He has a great deal of knowledge and experience by reason of his training and background in the application of the Coast Guard regulations of industry practice and rules having to do with the design and construction of commercial vessels.

Appendix E

(28) David Saveker is a fully qualified naval architect, but his background is primarily in the construction and equipping of naval vessels. However, as Grief testified, there is considerable difference between standards which apply to naval vessels from those applicable to commercial vessels.

Obviously, the mission of naval vessels differs from the purpose of commercial shipping.

(29) Grief's opinion concerning the regulations and standards applicable to the *Saratoga* at the time the vessel was constructed are entitled to full credit. The hydraulic system designed by MARCO and installed by Martinac Shipyard on the *Saratoga* met all regulatory requirements and all trade and standards accepted and followed in the shipbuilding industry at the time the [14] *Saratoga* was constructed.

(30) Since risks and hazards, according to Grief, are met in the commercial shipbuilding industry by incorporating standards providing a safety factor of 4 to 1; that is, hydraulic hoses and other components must be specified to withstand pressures and perhaps temperatures in excess of four times normal operating conditions.

(31) Standards in the commercial shipbuilding industry did not at the time the *Saratoga* was constructed require a hazard analysis for consideration of potential failure modes.

(32) The evidence in fact does establish that MARCO designers were aware that the rupture or failure of a hydraulic hose or failure of a coupling on a hydraulic system operating at 2,000 psi in close proximity to an engine operating with surface temperatures in excess of the flash point of hydraulic fluid created a serious risk of fire.

Appendix E

(33) MARCO designed the hydraulic system with reference to existing standards and manufacturer's ratings on hoses and fittings to minimize the possibility of [15] failure and to reduce the possibility of accidental escape of hydraulic fluid from the system.

MARCO did not recommend placement of a metal barrier or other means of isolating the hydraulic hoses coming off the pumps from the D333 Caterpillar engine or the turbocharger.

(34) According to the opinion of naval architect, David Saveker, the designer of the MARCO hydraulic system failed to do a hazard analysis or to examine potential failure modes.

It was known according to Saveker that hydraulic hoses and couplings will fail, and it's not enough to rely upon maintenance of the hydraulic system or control of fire by means of fire suppression. Rather, in Saveker's opinion, it was necessary for the designer of a hydraulic system to undertake a hazard analysis and cause the hazard to be removed from the system or otherwise to provide adequate warnings. Failure to do so at the time the MARCO hydraulic system was designed caused the system to be unreasonably dangerous and was a direct cause of the fire and loss of the *Saratoga*.

(35) Based on his investigation and study, Grief found the CO_2 system as designed and installed on the [16] *Saratoga* to be in compliance with well established practice in commercial vessels and fully complied with Coast Guard regulations.

The CO_2 system installed in the *Saratoga* was state of the art in 1972. Periodic surveys of the vessel including a survey done following work in 1985 at Ensenada Shipyard revealed the CO_2 system was inspected and found in good operating condition.

Appendix E

(36) However, based upon his investigation including examination of deposition testimony as well as the plans, specifications and drawings of the *Saratoga*, Grief formed an opinion that at the time of the fire aboard the *Saratoga*, the CO_2 system was not activated. The siren failed to sound although it was connected into the system, and the blowers installed to ventilate and exhaust the engine rooms failed to shut down.

CO_2 did not release into the engine room since Grief determined that the *Saratoga*'s generating system continued to function for approximately an hour. If CO_2 had released into the engine room, the power drive to the generator would have stopped within minutes for want of oxygen.

(37) The design of the CO_2 system provided an [17] automatic closure of a door between the shaft alley and the main engine room. Again, based upon his investigation into the cause of the loss of the *Saratoga*, Grief found no indication that the door closed, and he found that, had the door closed, the shaft alley would not have flooded.

According to Coast Guard tests on CO_2 systems, the CO_2 system would have contained 2,400 pounds of CO_2 and 85 percent of the total CO_2 in the system would have released into the engine room, and diesel-driven engines would stop within two minutes for want of oxygen.

(38) I accept Grief's opinion that the CO_2 system aboard the *Saratoga* was state of the art when installed. I agree as well with his opinions that the CO_2 system was not activated or did not function at the fire ignited in the upper engine room of the *Saratoga* on January 16th for the reasons given by Grief.

Appendix E

(39) David Saveker expressed his opinion that Martinac's use of plastic pipe below the water line of the *Saratoga* was a defective design and unreasonably dangerous. However, he had no knowledge of industry standards or regulatory codes regarding the use of plastic pipe in commercial tuna boats in 1972. In his opinion, the fire had expanded into the lower engine room and melted the [18] plastic pipe within three to five minutes after the fire ignited. The damage to the plastic pipe caused the *Saratoga* to flood.

(40) Antoine Jasick, an expert fire investigator, also expressed his opinion that the plastic pipe was involved by fire within four to six minutes and at that time the vessel began flooding through the plastic pipe.

(41) Larry Grief reviewed Saveker's opinions relating to the cause of the flooding of the *Saratoga* and the ultimate loss of the vessel. He found that Saveker's opinion on the cause of the flooding was not based on adequate information or data to support Saveker's conclusions.

According to Grief, without detailed examination of the construction plans of the vessel and knowledge of access or openings into the hull, estimates to the cause or rate of flooding cannot be made with any degree of reliability.

(42) At the time the *Saratoga* was built, the construction plans for sea water service piping in the lower engine room was steel, and the PVC pipe or plastic [19] piping was installed into the brine lines outside the engine room.

According to Chief Engineer Ogilvie, the sea water service lines were steel from the sea chest to the pumps and beyond the pumps were plastic pipe.

Appendix E

When Grief made his investigation, he concluded that plastic pipe had replaced steel piping in the engine room of the *Saratoga*.

(43) PVC piping is universally accepted and is considered good practice to install in commercial vessels including tuna boats with the exception of critical services such as to main propulsion engines and to firefighting systems.

A brine system installed board a tuna boat is not considered a critical service. Not only do the Coast Guard regulations permit the use of plastic pipe in commercial vessels, but the American Bureau of Shipping Rules permit the use of plastic pipes in non-vital systems.

Metal piping is subject to corrosion, and plastic pipe is easier for a crew to repair while a vessel is at sea. It is not uncommon in a warm, salt-water environment to find it necessary to replace metal piping after 10 years.

[20] (44) Grief examined documents containing details of the *Saratoga*'s construction. According to the plans of the *Saratoga*, plastic pipe was specified for use in the brine system. Piping in the main engine room, according to the plans, is steel until the piping enters the shaft alley.

Grief found the use of plastic pipe in the brine system an excellent choice and in full accord with regulations and rules at the time the pipe was installed.

(45) Grief also found the CO_2 system as designed for the *Saratoga* to be in compliance with well established practice in commercial vessels and met Coast Guard regulations accepted

within the industry. The *Saratoga* CO_2 system was state of the art in 1972.

(46) The design of the hydraulic system installed aboard the *Saratoga* met well established marine practice and met design requirements of commercial and naval vessels. According to Grief, the hydraulic system design installed aboard the *Saratoga* was similar to hydraulic systems present in virtually every vessel he'd been aboard.

(47) I find that the opinions of Saveker and [21] Jasick as to how the flooding occurred on the *Saratoga* are not supported by underlying information or data, and I reject their opinions.

The cause of the flooding on the *Saratoga* cannot be determined within a reasonable degree of probability, but I find the use of plastic pipe in a brine system in *Saratoga* as installed in the shipyard was not a design defect which contributed, caused or brought about the flooding and the loss of the *Saratoga*.

(48) When the *Saratoga* was in the shipyard in Ensenada in 1985, work was done on the vessels hull including sandblasting. After the vessel returned to the fishing grounds, Captain Vargas noted that the pump cartridges, quote, "wore out like crazy", end of quote.

He requested the chief engineer to look into the problem and, upon inspection by the engineer, sand was found in the filter fluid reservoir or tank.

(49) But sand or grit if very difficult to remove from hydraulic systems. Sand or grit destroys or damages pumps, valves and other machinery. Sand will collect in small orifices and cause valves to stick and not open.

The efforts of the engineers aboard the *Saratoga* [22] to clean the hydraulic system of sand or grit was not entirely successful. Attention to the problem had followed Captain Vargas' observations that the cartridges in the Vickers pumps were wearing out an abnormal rate.

After the hydraulic system was cleaned, the pump cartridges in the Vickers pump continued to wear out within a short time, far less time than normal on tuna vessels.

(50) Vesley Ogilvie boarded the *Saratoga* as chief engineer at San Diego early in May of 1984. At that time the vessel was in poor condition and was undergoing some repairs at dockside. The Caterpillar D333 engine driving the hydraulic system was overhauled. Ogilvie replaced hydraulic hoses and cleaned the system up.

On the first trip out after dock repairs, considerable trouble was experienced in the hydraulic system including loss of power. Valves were leaking and hoses breaking on the deck.

Ogilvie's opinion on the cause of hydraulic system problems was that the system was worn out.

(51) During fishing operations, the hydraulic system was not pursing the seine as fast as Captain Vargas wished. Captain Vargas wanted more power from the equipment during operations and the auxiliary 100- [23] horsepower electric drive and pump were installed to provide more power to the power block. But adding the electric drive pump did not solve the problem. The power block was not rotating as fast as Captain Vargas wanted, so Ogilvie changed to larger cartridges in the Vickers pumps in order to increase power on the system.

Appendix E

Two of the pumps were double pumps and Ogilvie installed cartridges providing more flow of the hydraulic fluid on each side of these two main pumps. In addition, a single-cartridge pump is driven off the hydraulic drive, and Ogilvie also installed a larger cartridge in the single pump. Although pressure increased in the hydraulic system, there was little improvement in the pursing of the seine. The problems persisted.

(52) In an effort to increase power as Captain Vargas wished, Ogilvie increased the pressure on the system to 2,400 psi on the main purse winch and the power block. Ogilvie advised Captain Vargas that, in Ogilvie's opinion, the hydraulic lines installed aboard the *Saratoga* were too small and a larger, stronger engine was needed for the hydraulic drive. Captain Vargas priced the costs and expenses for a more powerful engine.

(53) Lewis Jorge came aboard the *Saratoga* as [24] assistant engineer in July of 1985. On his first trip out aboard the *Saratoga*, Jorge observed the D333 Cat engine overheat and pump cartridges were wearing out.

Chief Engineer Ogilvie and Assistant Engineer Jorge continued to change cartridges in order to obtain a maximum amount of hydraulic flow in the system. Although the performance of the pumps and the hydraulic system had been enhanced by inserting larger cartridges, the hydraulic system failed to perform well. On almost every set, problems were encountered. In Jorge's opinion, the system was overloaded.

(54) Sometimes while pursing the seine, the water temperature gauge on the D333 Cat went into the red and the engine occasionally shut down. Efforts were attempted to cool the engine by injecting water into the cooling system with a fire hose.

Appendix E

The alarm panel installed on the engine was activated by high water temperatures in the engine. Because of the annoyance caused by the alarm sounding frequently, the alarm system was switched off.

(55) When the *Saratoga* came into Ponce, Puerto Rico in October of 1985, Ogilvie left the vessel and Chief Engineer Mark Nielsen replaced Ogilvie. The *Saratoga* was [25] unloaded tuna at the time Nielsen came aboard.

(56) After leaving Puerto Rico, the *Saratoga* was to proceed to Panama for work on the hydraulic system. Several of the winches were leaking hydraulic fluid. Several hydraulic hoses needed replacement. The D333 Cat engine was overheating, but the operating plan of Captain Vargas was to live with that problem until the next shipyard overhaul. Money was short since considerable had been spent to make other repairs to the vessel.

(57) Captain Vargas discussed with Chief Engineer Nielsen the heating problems, the inadequate engine size, but said those matters would be taken care of at the next shipyard layup. Captain Vargas planned to change the engine for a larger size and install a more adequate heat exchanger.

(58) Nielsen brought to Captain Vargas' attention the heat temperatures of the hydraulic fluid in the hydraulic system. Readings were taken indicating hydraulic fluid temperatures of 210 degrees Fahrenheit and 215 degrees Fahrenheit.

Nielsen also called Captain Vargas' attention to the manuals which indicated normal operating temperatures [26] of 125 degrees Fahrenheit to 140 degrees Fahrenheit.

Appendix E

(59) When the *Saratoga* arrived in Panama, MARCO Panama was engaged to do the work on the hydraulic system. The system was pressure-checked to determine the source of power loss. Several pump cartridges were found defective and were replaced. Work was also done on deck hydraulic machinery, and several seals in the hydraulic system were replaced. The repairs took approximately one week.

(60) The seals in the hydraulic system were designed to operate at normal procedures in the system. Excessive heat causes accelerated deterioration of seals and some other components such as hydraulic hoses. Indeed, Chief Engineer Nielsen testified that excessive heat in the hydraulic system leads to a multitude of problems. He observed that the Vickers pump manuals teach that Vickers pumps will break down very rapidly at high heat. Excessive heat in the hydraulic system reduces the viscosity of the hydraulic fluid and under pressure will cause metal wear in pumps. Loss of lubrication capacity can increase violation.

Hydraulic hoses are installed in hydraulic systems to isolate the vibration of moving engines or machinery from other parts of the hydraulic system that are [27] static or mounted on the vessel.

(61) Nielsen noted that the drawings and blueprints supplied by the shipyard for the original hydraulic system call for smaller-capacity cartridges in the Vickers pumps, but the increased capacity provided by the larger cartridges provided, in Nielsen's opinion, an increased flow of 25 to 30 percent.

(62) Not only was the hydraulic fluid temperature exceeding normal operating limits, but the main drive engine,

Appendix E

the D333 Cat was overheating. The water temperature alarm had been turned off on the engine to eliminate the annoyance caused by the alarm which often sounded. At times, while fishing operations were ongoing, the main hydraulic drive, the D333 Cat, would shut down because of excessive water temperature.

(63) Depending on the engine horsepower, the hydraulic system can operate hydraulic pumps, machinery and equipment by driving a given amount of hydraulic fluid at a given pressure. Changing the pump cartridges to larger-sized cartridges will provide more power since the velocity of the hydraulic fluid will be increased. This in turn will lead to greater friction and more heat.

[28] (64) After the *Saratoga* left Panama for the fishing grounds, the pump cartridges installed by MARCO Panama wore out and needed to be replaced. In Nielsen's experience, the normal life of pump cartridges would be expected to be several years, and failure of the pump cartridges within such a short time would be abnormal.

(65) In Griefs opinion, the hydraulic system aboard the *Saratoga* was no longer operating by reason of the modifications put into the system as the system had originally been designed. The 100-horsepower electric drive and pump amounted to a major change in the hydraulic system causing the hydraulic fluid to pass through the system at higher velocity. Larger equipment such as the 48-inch power block requiring more power to operate had been installed without modification of the hydraulic hoses, piping and relief valves.

Temperatures of the hydraulic fluid reached as high as 215 degrees Fahrenheit, far higher than the maximum of 160 degrees

Fahrenheit with an operating range of 100 degrees Fahrenheit to 140 degrees Fahrenheit as designed into the system.

Temperature of 215 degrees Fahrenheit as noted by the engineers aboard the *Saratoga* would not have been reached had the hydraulic system been operating in [29] accordance with the original design.

The high temperatures of the hydraulic fluid necessarily would impact upon the pumps, relief valves and other machinery operating with close tolerances and working parts.

(66) As temperatures of hydraulic fluid increased, the viscosity of the fluid decreases causing greater wear. High temperatures of the hydraulic fluid affects not only machinery or equipment but hydraulic hoses, fittings, seals and the like.

The primary effect of heat on all of these components is to increase the rate of deterioration.

(67) The *Saratoga* was again forced to return to Panama on the 23rd of December because the turbocharger on the main engine failed. After some two weeks in Panama undergoing repairs, the *Saratoga* departed Panama on January 8th to fish approximately 200 miles of the Gallapagos Islands.

(68) On January 16th, Chief Engineer Nielsen observed the one and one-quarter-inch hydraulic hose seeping hydraulic fluid between the hose and the coupling attached to the pump. Nielsen would have made up a new [30] hose but lacked a necessary tool. He took the matter up with Captain Vargas, and the *Chiriqui II* was contacted by radio.

It was arranged that the needed replacement hydraulic hose would be made up on the *Chiriqui II*, and a meeting between the two boats was scheduled for later that day.

A few days earlier, a smaller, three-quarter-inch hydraulic hose had been replaced by Assistant Engineer Jorge. The tools necessary to make up the three-quarter-inch hydraulic hose were aboard the *Saratoga*.

(69) Assistant Engineer Jorge had also observed that the hydraulic hose on board on the port side pump of the *Saratoga* hydraulic system was leaking hydraulic fluid. He recalled that the engineers searched for a proper size crimping tool, but the necessary tool could not be found.

(70) In the afternoon, tuna were observed, and Captain Vargas ordered a set to be made. Ordinarily, Arthur Ferreria would operate the controls pursing the net. However, a radio schedule with the tuna fleet or as termed the code boats was to begin at 6:00 p.m. At that time, Captain Vargas took over the controls at the console.

Ordinarily, if a substantial catch is made, the [31] seine is pursed and the tuna are brailed from the net bag to the vessel. The catch was not heavy, and Captain Vargas brought the net and the fish aboard. Before the fish were lowered to the deck, Captain Vargas complained to Chief Engineer Nielsen that he was having trouble with the single winch which had completely lost power.

When Vargas moved the control on the double winch, the single winch momentarily functioned, but within approximately a half a minute, the single winch malfunctioned again.

(71) While these events were occurring, Assistant

Engineer Jorge was on his way to adjust the pumps in order to put brine into the tank receiving the catch. As he passed through the upper engine room, he saw the one and one-quarter-inch hydraulic hose nearest the port side pulsating. Jorge had never before observed the hydraulic hose pulsing. This attracted his attention and, as he watched, the hose pulled out of the coupling and almost immediately hydraulic fluid sprayed to the overhead and onto the turbocharger and ignited.

(72) Jorge attempted to turn the engine shutoff lever but was unable to stop the engine before he was driven away by flames. He attempted to suppress the fire [32] with a CO_2 handle bottle, but the flames continued to expand in the engine room, and he left the engine room to make his way forward and out a hatch onto the deck.

(73) Chief Engineer Nielsen had by this time activated a fire hose and was attempting to extinguish the fire, standing on a ladder which descended to the wet deck. Smoke was pouring out of the access door to the upper engine room, so Chief Nielsen went to get an air mask carried on board and, after putting the mask on, attempted to descend to the wet deck. However, the water failed in the fire hose.

(74) Assistant Engineer George recalls that he went forward to activate the CO_2 system. He found it necessary to break the glass face over the pull cable, but was able to pull the handle attached to the cable which should have immediately released CO_2 into the engine room.

When he pulled the handle, the cable moved, but he observed no effect from the CO_2 system.

(75) Fire Investigator Jasick was of the opinion that the

pressure on the hydraulic system caused the hydraulic fluid to atomize causing the vapor to ignite on contact with the turbocharger.

[33] There is considerable doubt whether the pressure after release of the hydraulic hose from the coupling may have been sufficient to atomize the hydraulic fluid.

(76) The two experts, Saveker and Grief, disagree whether the pressure in the system was sufficient to project the fluid up to the overhead, but I find the hydraulic fluid on release of the hydraulic hose sprayed up from the coupling, fell back on the hot surfaces of the turbo and immediately ignited.

The fire investigator estimated that the entire upper engine room was enveloped with fire within one minute. Again, I believe that this opinion is subject to considerable doubt in view of Assistant Engineer Jorge's efforts to shut down the engine and to obtain the CO_2 bottle which he had discharged or emptied in the engine room before he fled.

(77) Investigator Jasick came to the opinion that hydraulic fluid escaped into the lower engine room and ignited within 30 seconds to one minute. He also reached opinions that the closing of the access door to the upper engine room, the shutting down of the blowers and the activation of the CO_2 suppression system would not have made any difference; the fire could not have been [34] suppressed.

(78) When Captain Vargas became convinced that the flames were spreading on the vessel and the fire could not be controlled, he ordered the crew to abandon the *Saratoga*.

The crew took the first skiff alongside the *Saratoga*, leaving

behind their personal effects. No member of the crew sustained injury, but Assistant Engineer Jorge suffered some minor burns. Arthur Ferreria retrieved the *Saratoga*'s papers. Captain Vargas carried a radio aboard the seine's skiff but was unable to open the ship's safe and left $16,000 on board.

(79) Approximately three hours later, the *Chiriqui II* appeared and rescued the crew. The following morning, January 17th 1986, shortly after 8:00 a.m., the *Saratoga* sank.

Obviously, the immediate cause of the *Saratoga*'s sinking was the flooding that occurred in consequence of the fire. Because of the uncertainty in the evidence, I am unable to say precisely how the flooding occurred except that I am able to find that it was caused by the fire.

The *Chiriqui II* sailed for Costa Rica to put the [35] crew of the *Saratoga* ashore. The master of the *Chiriqui II* was unwilling to tow the *Saratoga*'s purse skiff, which was then scuttled.

(80) Saratoga Fishing contends that National Pump and Injector and MARCO Panama were agents of MARCO Seattle. Hence, any modifications in the hydraulic system which was designed and furnished by MARCO Seattle and installed by Martinac Shipbuilding that were recommended by National Pump and Injector or MARCO Panama are the responsibility of MARCO Seattle.

(81) Authority to act as an agent can be created by words or other conduct on the part of the principal causing the agent to believe that the principal intends him to act for the principal's account. See Restatement Second of Agency, § 26.

Saratoga Fishing, however, is not relying upon the doctrine

of actual authority to establish the responsibility of MARCO Seattle for modifications of the hydraulic system aboard the *Saratoga*. Rather, Saratoga Fishing contends that MARCO Seattle may be held responsible for the modifications to the hydraulic system of the *Saratoga* under the doctrine of apparent authority.

Apparent authority is created as to a third [36] party by words or conduct of the principal which, reasonably interpreted, caused the third party to believe that the principal consents to have the act done on his behalf by the person purporting to act for him. See Restatement of Agency Second, § 27.

(82) In order to recover against MARCO Seattle on this theory, Saratoga Fishing must establish:

(1) The principal was responsible for the appearance of authority in the agent to conduct the transaction.

(2) The third party reasonably relied upon the representations of the agent.

However, the existence of apparent authority must be due to the words or conduct of the principal and cannot be established by the unauthorized acts, representations or conduct of the agent.

(83) I find that Guy Bruni of NP&I was not authorized by MARCO Seattle to act as its agent, and the only instance that NP&I was authorized to act as MARCO's representative was in performing warranty work after the *Saratoga* returned to San Diego from making its first voyage out.

[37] (84) The insertion of the larger cartridges in the Vickers pumps was done initially by Chief Engineer Ogilvie in

order to respond to Captain Vargas demand for more power to the power blocks, winches and other machinery.

CONCLUSIONS

(85) I conclude that neither NP&I nor MARCO Panama had either expressed authority, nor did MARCO Seattle, by words or conduct, represent or suggest to Saratoga Fisheries that NP&I or MARCO Panama were authorized to act for or represent MARCO Seattle in any way during the period of 1984 until the time the *Saratoga* was lost in January of 1986.

(86) Saratoga Fisheries advances claims of liability on theories of negligence, strict products liability and failure to warn. On the evidence presented at trial, the strict product liability and negligence claims come down to the same two questions, albeit phrased in different terminology.

(87) Joseph Martinac, president of Martinac Shipyards, testified that he knew at the time the *Saratoga* [38] was built of the danger of a fire from hydraulic hose failure. The design choice to counter this risk was to build in a safety margin in the components of the hydraulic system from four to six times the maximum pressures.

(88) This concession reduces issues of negligence and unreasonably dangerous product to the single question of whether the choice selected was a reasonable design. Quote:

> "The strict liability standard is no different from that of negligence . . . except that the seller is presumed to have knowledge of the actual condition of the product when it leaves his hands."

See Phillips, *The Standard for Determining Defectiveness in Products Liability*, 46 U.Cin.L.Rev. 101 at 103 (1977), citing to Deans Wade and Keeton.

(89) The modifications and claimed misuse of the hydraulic system by the claimant, Saratoga Fisheries, whether phrased as a foreseeable misuse question in strict products liability or supervening cause question in negligence, reduces to the single question of foreseeability. It is clear that an intervening cause will be treated as a supervening cause only if it is unforeseeable to the defendant. *Prosser and Keeton on* [39] *Torts*, § 44 at page 302 (5th ed. 1984).

The foreseeable misuse defense in strict products liability reduces to the same question. Quote:

> "In effect, the question [of foreseeable misuse] is simply whether the intervening alteration of the product was the superseding cause of the injuries." See *Hales vs. Green Colonial, Inc.*, 490 F.2d 1015 at 1020 (8th Cir. 1974)

(90) Admiralty law incorporates the theory of strict products liability and generally applies § 402A of the Restatement Second of Torts. *East River Steamship vs. Transamerica Deleval*, 476 U.S. 858 (1986); *Pan-Alaska Fisheries vs. Marine Construction and Design*, 565 F.2d 1129 (1977). According to the restatement,

> "(1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is

subject to liability for physical harm thereby caused to the ultimate user or consumer or to his property if

(a) The seller is engaged in the business of selling such a product, and

(b) It is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in subsection (1) applies although

[40] (a) The seller has exercised all possible care in the preparation and sale of his product, and

(b) The user or consumer has not bought the product from or entered into any contractual relationship with the seller."

(91) Defendants contend that § 402A of the Restatement does not apply to McDruga's acquisition of the *Saratoga*. They suggest that the rationale of § 402A does not apply to the sale of a large, customized commercial tuna boat between a buyer and seller of comparable economic strength and sophistication in the relevant industry.

(92) In *Chubb Group of Insurance Companies vs. C. F. Murphy & Associates, Inc.*, 656 S.W.2d 766 (Mo.App. 1983), the

court held that the contractor and architect of a large, commercial building could not be held liable under strict products liability but remanded for further development of the facts on a products liability claim against the manufacturer and distributor of allegedly defective steel.

In reviewing the development of § 402A of the Restatement, the court in *Chubb Group* agreed, quote,

> " . . . that in all likelihood the drafters of the restatement did not intend to include real property [41] within the language of 402A."

However, most jurisdictions which have considered the question would include newly constructed homes within the meaning of "product" in products liability law.

(93) In *McKay vs. Rockwell International Corporation*, 704 F.2d 444 (9th Cir. 1983), the Ninth Circuit ruled that a government contractor was not liable under Section 402A under certain limited circumstances. These included that the United States was not liable under the Federal Tort Claims Act, that the United States provided precise specifications for the product, that the equipment conformed to the specifications and that the contractor warned the United States about patent defects in the product. See *McKay* at 451.

While the ruling was based on a Federal Tort Claims Act and government contractor jurisprudence, the court went on to further explain the result by analyzing the policy considerations under Section 402A. The court concluded that the policies did not support strict products liability under the peculiar fact situation presented in *McKay* and that this conclusion reinforced the holding of the court.

(94) I conclude that the real property exception [42] of Restatement § 402A cannot be expanded to apply to tuna vessels or to marine machinery equipment or to hydraulic systems installed on such vessels. The factual similarity to the leading case in the in the Ninth Circuit removes any doubt on this issue. In *Pan-Alaska vs. Marine Construction & Design Company*, 565 F.2d 1129 (9th Cir. 1977), the Ninth Circuit upheld strict products liability for the sinking of the, "76-foot crab fishing vessel, *Enterprise*," based on an oil fire caused by a Caterpillar D343 engine. It would do so in the present case.

(59) MARCO relies on *Snyder vs. ISC Alloys, Ltd.*, 772 F.Supp. 244 (W.D. Pa. 1991) to argue that it should not be liable under the doctrine of strict products liability in the present case. In *Snyder*, defendant ISC signed an exclusive licensing agreement with St. Joe Resources to use St. Joe's patented process for converting zinc metal to zinc dust. St. Joe provided technical service, drawings and plans for the construction of the zinc dust plant. St. Joe did not sell any physical parts to ISC. St. Joe did not have a continuing role in the operation of the plant. The court held that general tort law rather than products liability was the appropriate legal theory.

[43] (96) I conclude that *Snyder* must be distinguished from the present case. The "product" in *Snyder* was entirely the services St. Joe provided to ISC in the building of the plant. St. Joe and ISC did not collaborate to create products to be sold to consumers. Indeed, the court found the lack of any evidence that St. Joe had ever marketed the technology to any other party to be a significant matter. See *Snyder* at 252.

(97) In the present case, MARCO not only designed but advised and tested the hydraulic system during the construction

of the vessel and warranted the performance of the hydraulic system as installed by Martinac Shipyards.

(98) I conclude that MARCO's part in the construction and installation of the hydraulic system of the *Saratoga* goes beyond providing mere service, but MARCO may be considered as the designer and manufacturer of the MARCO hydraulic system.

(99) MARCO also relies upon *Employers Insurance of Wausau vs. Suwannee River Spa Lines*, 866 F.2d 752 (5th Cir. 1989), and *Watson. Watson & Rutland/Architects Inc. vs. Board of Education*, 559 So.2d 168 (Ala. 1990). These [44] cases have to do with contracts for professional services only and do not involve strict products liability.

(100) Respondents contend that, under § 402(4)(1) of the Restatement, the MARCO hydraulic system installed on the *Saratoga* by Martinac Shipyards was not defective. They rely upon comment (g) of Section 402(a), quote:

> "The rule stated in this section applies only when the product is, at the time it leaves the seller's hands, in a condition not contemplated by the ultimate consumer which will be unreasonably dangerous to him."

(101) Respondents say that admiralty cases interpreting § 402A including those of the Ninth Circuit have followed the rationale of comment (g) to 402A and have concluded there is on product defect where the user is aware of the dangerous features of the product. See *Complaint of Diehl*, 610 F.Supp. 223 (D.C. Idaho 1985), and *McCune vs. Aliota Fish Company*, 597 F.2d 1244 (9th Cir. 1979).

Appendix E

(102) In *Complaint of Diehl*, the District Court applied a consumer expectation test to conclude that an uninsulated, metal main mast on a sailing boat was not a [45] design defect. The boat's mast hit a power line in the harbor causing an explosion and fire which killed most on board. The court held that the danger of running a metal mast into a power line was open and obvious. Quote:

> "A fair reading of Section 402A and its comments reveals that open and obvious dangers inherent in some products do not necessarily make them 'unreasonably dangers'. Rather, only latent dangers, not reasonably discoverable or not contemplated by consumers, render products defective." See *Diehl* at 227.

(103) The Court of Appeals in *McCune vs. Aliota Fish*, 597 F.2d 1244 reviewed findings and conclusions made by the District Court. In its findings, the trial court had found no defect in the winches which were of proximate cause to any of petitioner's injuries.

The court also found that petitioner's injuries were due solely to his own ignorance or of others apart from the respondent, that the manufacturer of the winches had made no warranties, that the uncovered moving parts of the winch in which petitioner caught his foot were open, obvious and apparent to everyone, that the winches were installed in 1971 and no complaints about the winches were made until the time of the accident in 1974.

The Court of Appeals held that, on the District [46] Court's findings, there was no defect in the winches sold by respondent

Appendix E

which were a proximate cause to petitioner's injury. This finding precluded any recovery under the strict products rationale of Restatement § 402A; that is, the court concluded that the product had been found by the trial judge not to be defective in any way causing petitioners injury.

(104) Contrary to respondent's position, I conclude that there has been considerable criticism of the so-called consumer's expectations test illustrated under comment (g) of Restatement § 402A. A number of courts and legal commentators have adopted the risk/utility analysis in determining whether a product may be dangerous within the strict liability definition of Restatement § 402A.

(105) Legal commentators have also become increasingly critical of a pure application of the consumer expectation test in the development of land-based products liability law. See *Prosser & Keeton on Torts*, 698 (5th ed. 1984).

California and Alaska allow a plaintiff to show a defect under either test. See *Barker vs. Lull Engineering Company*, 20 Cal.3d 413 at 432 (1978); *Caterpillar Tractor Company vs. Beck*, 593 P.2d 871 (Alaska [47] 1979).

(106) The consumer expectations test has been most criticized when the danger can be described as open and obvious. The refusal to find liability for an open and obvious danger is sometimes called the "patent danger bar".

(107) The California Supreme Court has, quote,

> "... flatly rejected the suggestion that recovery in a products liability action should be permitted only if a product is more

> dangerous than contemplated by the average consumer, refusing to permit the low esteem in which the public might hold a dangerous product to diminish the manufacturer's responsibility for injuries caused by that product." *Barker vs. Lull*, 20 Cal.App.3d 425.

On the other hand, the "patent danger bar" has shown a continued vitality in some states, particularly in failure-to-warn cases. See *Grey vs. Manitowoc Company, Inc.*, 771 F.2d 866 at 870 (5th Cir. 1985), applying Mississippi law.

(108) The risk/utility test has been accepted and applied in maritime law. Quote:

> "In different kinds of product cases and without noticeable consistency, admiralty courts have variously applied the risk/utility test, the consumer contemplation test or a hybrid of the two . . . Admiralty decisions reveal that no predictable [48] fact pattern or particular liability theory will dictate application of any one test, so it is not believed possible to identify a consistently preferred admiralty standard." Wanacott, *Products Liabilities of Shipbuilders and Repairers*, 62 Tul.L.Rev. 465 (1988).

(109) In *Pavlides vs. Galveston Yacht Basin, Inc.*, 727 F.2d 330 (5th Cir. 1984), the court applied a risk/utility analysis to determine that the design of the void bilge space and drains on a sport fishing boat was not unreasonably dangerous. When the bilge plug apparently fell out, the boat quickly filled with the

water. The water shorted out the bilge pump, and later the engine battery, so that the boat could not be drained by accelerating the boat. The Fifth Circuit stated that, quote,

> " . . . the determination that a product is unreasonably dangerous . . . means that, on balance, the utility of the product does not outweigh the magnitude of the danger . . . In other words, it must be so dangerous that a reasonable man would not sell the product if he knew the risk involved. See *Pavlides* at 337, quoting *Borel vs. Fibreboard Paper Products Corp.*, 493 F.2d 1076 (5th Cir, 1973), cert. denied, 419 U.S. 869 (1974) (asbestos).

The court went on to find liability based on a failure to adequately warn of the dangers.

[49] (110) I conclude that the claimant in an admiralty case such as now before this Court can show that a product is in a defective condition and unreasonably dangerous under either the consumer expectation test or the risk/utility test. In this case, I conclude that the risk/utility test is most appropriate and should be applied.

(111) I conclude that Saratoga, when constructed, met all requirements of the regulations or the rules and standards of industrial practice followed in the construction of tuna vessels and other commercial vessels.

(112) But despite compliance with the standards and regulations, the MARCO hydraulic system in design

incorporated an unreasonable risk not only to the vessel but to the crew who served aboard her. The placement of the hydraulic hoses carrying combustible hydraulic fluid at operating pressures of 2,000 psi in close proximity to a Caterpillar engine and turbocharger operating at temperatures above the flash point of hydraulic fluid was known to create a serious fire risk.

The practice accepted by the industry at the time was to provide a safety factor of 4 to 1 over [50] operating pressures designed into the system.

(113) Nevertheless, it was known and accepted by MARCO, the designer of the hydraulic system, and by Martinac Shipyards, the builder of tuna and other vessels, that hydraulic hoses can and do fail. But knowing this, nothing was done to minimize the unreasonable risk that, although hydraulic hoses were specified with a safety factor of 4 to 1, a failure or rupture of the hose could lead to a fire in the engine room.

The risk was known and should have been considered and reasonable efforts made to isolate the hydraulic hoses from the high temperatures on the surfaces of the engineer or the turbocharger. As Saveker put it, the design of the hydraulic system was an accident waiting to happen.

(114) In evaluating the risk/benefit, it is necessary to weigh the danger of a product against the utility. Under this test, a product can be said to be defective in the kind of way that makes it unreasonably dangerous if a reasonable person would conclude that the danger, whether foreseeable or not, outweighs the utility of the product.

There are three primary reasons for so [51] concluding, quote:

"(1) The harmful consequences in fact from intended and reasonably foreseeable use as resulting from the way the product was designed and marketed up to the time of Plaintiff's injuries, Plaintiff's injury outweighs the benefits in terms of wants, desires and human needs served by the product.

(2) Although the harmful consequences in fact did not exceed the benefits, alternative products were available to serve the same needs or desires with less risk of harm.

(3) Although the harmful consequences do not outweigh the benefits, there was a feasible way to design the product with less harmful consequences."

Most of the products liability litigation relating to design hazards has been concerned with the feasibility of a safer, alternate design. See *Prosser and Keeton, the Law of Torts*, 5th ed. at 699 and 700.

(115) Photographs and other exhibits have been received into evidence at this trial showing water shields serving the purpose of isolating the hydraulic hoses from the engines and turbocharger.

There's been testimony by the engineers concerning metal shields on at least one tuna vessel.

Appendix E

[52] (116) When the hydraulic hose ruptured or separated from its coupling to the pump, hydraulic fluid came into contact with the hot surfaces of the turbocharger and immediately ignited. The *Saratoga* was lost but fortunately her crew escaped without injury.

(117) I conclude that the MARCO hydraulic system as designed and installed in the *Saratoga* was unreasonably dangerous and was a contributing cause of the fire which ignited in the upper engine room on January 16, 1986 causing the loss of the vessel and all property aboard her at the time she sank.

(118) I conclude that, taking into consideration the unreasonable risk and the magnitude of that risk, there was a feasible way to design the hydraulic system with less harmful consequences. A metal shield or water shield could have been placed in the design so as to isolate the hydraulic hoses from the hot surfaces of the engine and the turbocharger.

FINDINGS ON COMPARATIVE NEGLIGENCE

(119) Respondent's expert, Grief, enumerated a number of reasons which, in his opinion, caused the hydraulic hose to rupture or to disengage from its coupling [53] on January 16, 1986. Among the possibilities he identified were:

- The system was not operated as designed.
- The wrong hose was installed.
- The hose which failed was defective.
- The hose was in poor condition.

Appendix E

- The hose was not properly crimped into the coupling.

All of these possible causes of hydraulic hose failure could happen even though the designer or shipbuilder specified in the operating manuals hydraulic hoses with a safety margin of 4 to 1.

(120) If a hazard or risk analysis had been undertaken at the time the hydraulic system was designed, it would have been obvious that a number of the possibilities leading to failure of hydraulic hoses could occur even though the specifications called for in the manuals were followed.

It was also known and conceded that failure of a hydraulic hose designed to contain hydraulic fluid during operations of the hydraulic system at 2,000 psi in close proximity to a diesel engine and turbocharger with surface temperatures in excess of the flash point of hydraulic [54] fluid constitutes a serious risk of fire.

(121) But there are other risks which would also have been obvious had a risk analysis been undertaken by the designer. The risk that larger hydraulic equipment or machinery might be installed in order to speed up fishing operations, thus providing greater opportunity to maximize the catch of fish, the risk arising out of the misuse of the hydraulic system by operating the system in excess of its design limitations should have been considered.

(122) All of these risks that might cause or contribute to cause hydraulic hose failure might have been minimized had the design of the hydraulic system included some means of isolating the hydraulic hoses from the high surface temperatures of the Cat engine and turbocharger.

Appendix E

(123) There is evidence that at the time the hydraulic system was installed on the *Saratoga* that a water shield or jacket was in place over part of the heated surfaces of the turbocharger. The evidence is sharply conflicting as to whether this water shield or jacket had been removed prior to the fire. Ogilvie testified in his deposition that he thought the shield had been removed. He then said he could not recall if it had been removed, but [55] could have removed it himself.

Lewis Jorge was also equivocal in his testimony about whether the water shield had been removed or not.

(124) The Tillet report indicated the turbocharger was not shielded and the Coast Guard report indicated that the apparent cause of the fire was an unshielded turbocharger. The reports have little probative value in resolving the conflict in the evidence regarding removal of the water shield or jacket on the turbocharger attached to the D333 Cat engine.

The photographs forming enclosure 3 to the Tillet report are of an exhaust manifold water shield group and, according to the Tillet report, was taken from a Caterpillar parts book revision published August 1978. Whether these photographs depict the water shield or jacket on a turbocharger attached to the D333 Cat engine, I have no knowledge.

(125) The equivocal nature of the testimony of Ogilvie and Jorge having to do with removal of the water shield or jacket is so uncertain that I am unable to find it more probable than not that the water shield or jacket had been removed from the turbocharger.

[56] (126) Regardless of other evidence at trial including

Appendix E

evidence given by Assistant Engineer Jorge, I find that the water shield or jacket installed on the turbocharger at the time the hydraulic system was installed on the *Saratoga* at the shipyard did not cover all exposed heated surfaces on the turbocharger, nor were the heated surfaces of the D333 Cat engine covered by a water shield or otherwise isolated from the nearby hydraulic lines.

(127) I find that the water shield or jacket installed on the turbocharger attached to the D333 Cat, if it were in place, would not have prevented the fire from igniting, taking into account the probable pressures in the hydraulic system at the time the hydraulic hose ruptured or disengaged from the coupling.

At the time Jorge entered the upper engine room, he observed the one-and-one-fourth-inch hydraulic hose pulsating.

(128) A few moments earlier, a hydraulic system failure had occurred and Captain Vargas had complained of inability to control the single winch or to lower the net with the bag of fish to the deck. In view of that hydraulic system failure and the pulsating in the hydraulic hose, I find that any efforts to calculate the pressure at [57] the time the hydraulic hose failed would be unreliable.

(129) Jorge observed hydraulic oil rise to the overhead, fall back on the turbocharger and ignite. The experts have made calculations based on their assumptions concerning pressure on the hydraulic system immediately following the failure of the hydraulic hose. I reject those theoretical calculations and accept Jorge's testimony which on this point I find credible and reliable.

(130) Although claimant's expert, Saveker, expressed his

Appendix E

opinion that the MARCO hydraulic system was an accident waiting to happen, it also appears that the system operated satisfactorily and safely from the time the *Saratoga* was launched in 1972 until 1984 when Captain Vargas resumed command as captain and undertook to bring the *Saratoga* back to what she once was.

(131) At the time Saratoga Fishing acquired the *Saratoga*, Vargas was well satisfied with the vessel. He had served board the *Saratoga* as captain for McDruga, who owned the vessel from the time she passed her sea trials.

Saratoga Fishing neither asked for any representations or warranties as to fitness and condition of the *Saratoga* nor were any commitments given. Since [58] Vargas in 1984 undertook to rehabilitate the *Saratoga*, she had to have been in poor condition at that time.

(132) The vessel's poor condition was also observed by the engineers who served aboard the vessel after Vargas resumed command in 1984. Chief Engineer Ogilvie went board the *Saratoga* in May 1984. He found the vessel in poor condition, undergoing dockside repairs including the overhaul of the D333 Cat engine.

(133) After dockside repairs on her first trip out, Ogilvie noted a number of problems with the hydraulic system. Valves were leaking, hoses breaking on deck, and Ogilvie concluded that the system was worn out. Assistant Engineer Lewis Jorge came on board the *Saratoga* in July 1985. He observed that the D333 Cat engine overheated and occasionally stalled. He replaced pump cartridges which quickly wore out. He found that, on almost every set, problems were encountered with the hydraulic system.

Appendix E

(134) In October 1985, Chief Engineer Nielsen replaced Ogilvie while the *Saratoga* was at Ponce, Puerto Rico. When *Saratoga* left, Puerto Rico, she was taken to Panama for work on the hydraulic system. Nielsen became aware of excessive temperatures of the hydraulic fluid. He [59] called Captain Vargas' attention to the manuals for the hydraulic system. Nielsen discussed his concern with the D333 Cat which was overheating, but that problem was deferred by Captain Vargas until, according to Vargas, the *Saratoga*'s next layup in a shipyard.

(135) There were other maintenance problems which were neglected. The remote shutoff for the D333 Cat engine had corroded and become inoperative. Nothing was done to make repairs to the shutoff.

After the fire ignited in the upper engine room, the assistant engineer, Jorge attempted to shut down the engine using the cutoff lever, but flames forced him to abandon the effort before he was able to shut the engine down.

The crew was not trained in fire drills or in fire suppression. The point is not that it would have made a difference once the fire ignited in the upper engine room for the expert testimony establishes that the fire became uncontrollable within minutes.

The significance of the poor condition of the *Saratoga* reveals only that Captain Vargas was more concerned with catching fish than making necessary and urgent modifications or repairs to the hydraulic system on the *Saratoga*.

[60] (136) Chief Engineer Ogilvie was aware almost from the time he came on board the *Saratoga* in May 1984 of the problems in the hydraulic system.

Appendix E

(137) During fishing operations, the hydraulic system did not purse the net as quickly as Captain Vargas wished. Moreover, the net had been enlarged in order to make the fishing operation more successful. The 100-horsepower electric drive and pump were added to provide more hydraulic flow and power to the power block and winches.

A larger 48-inch power block replaced the 42-inch power block to speed up the pursing operations. Ogilvie inserted larger cartridges in the Vickers pump to increase hydraulic flow and power to the equipment and machinery. This caused the D333 Cat to be overworked and overheated.

(138) The velocity of the flow in the hydraulic system exceeded the velocity for which the system was designed to operate. The temperature of the hydraulic fluid exceeded the temperature the system was designed to operate, and the excessive temperatures caused the viscosity of the hydraulic fluid to decrease with an increase of wear on working parts in the hydraulic system [61] and attached machinery.

(139) Increasing the size of the cartridges in the Vickers pumps, along with the other modifications, did not provide sufficient flow or power to purse the seine as quickly as Captain Vargas wished. Chief Engineer Ogilvie attempted to increase power by raising pressures to the power block and winches from 2,000 psi to 2,400 psi by adjusting relief valves.

All of these modifications were incorporated to provide additional flow and power to the equipment and machinery so that the net could be more rapidly pursed, in order to speed up fishing operation and to enhance fishing opportunities.

Appendix E

(140) When the *Saratoga* went into the shipyard at Ensenada in 1985, work including sandblasting was done on the hull. Sand or grit found its way into the hydraulic system and caused the pump cartridges to wear out in an abnormally short time. The sand or grit destroys or causes wear to vales, pumps and other machinery with closely fitting working parts.

Sometimes valves will stick and not open. The attempts of the engineers aboard *Saratoga* to remove the sand or grit from the hydraulic system were not completely [62] successful.

The pump cartridges continued to wear out in a short period of time even after efforts were made to purge the system of the sand and grit and continued to wear out rapidly up to the time the Saratoga sailed from Panama January 8th, 1987.

(141) On January 16th, the one-and-one-fourth-inch hydraulic hose which failed, causing the fire in the upper engine room to ignite, was observed by Chief Engineer Nielsen to be leaking or weeping at the coupling. The defect had also been observed by Assistant Engineer Lewis Jorge.

Since the proper tool could not be found aboard the *Saratoga* to make up a replacement hose, arrangements were made by radio with the *Chiriqui II* to have the hose made up on board the *Chiriqui II*. The replacement those was to be delivered to the *Saratoga* when the two vessels met in accordance with arrangements.

Captain Vargas had been informed by Chief Engineer Nielsen of the faulty hose and had to be fully aware of the arrangements with the *Chiriqui II* to provide a hose and to meet with the *Saratoga*.

(142) Although it was obvious that the leaking [63] hose was damaged, the hydraulic system was operated during the set made on January 16th. Captain Vargas and Chief Engineer Nielsen had to know that operating the hydraulic system with a damaged hose could create an unreasonable risk that the hose would fail.

(143) I find that poor maintenance of the hydraulic system, the extensive modifications to the hydraulic system and the use of the hydraulic system known to have a defective hydraulic hose all contributed in some part to cause and bring about the catastrophic fire which ignited in the upper engine room of the *Saratoga* January 16, 1987 and was the precipitating cause of the vessel's loss on the following day.

CONCLUSIONS ON COMPARATIVE FAULT

(144) Strict products liability was originally brought into admiralty suits within the Ninth Circuit in *Pan Alaska Fisheries vs. Marine Construction*, 565 F.2d 1129 (9th Cir. 1977). In that case, the crab fishing vessel, Enterprise was returning to Dutch Harbor, Alaska after a major rebuilding of the vessel in Seattle. The rebuilding included the installation of a new D343 Caterpillar marine diesel engine.

While off Nanaimo, British Columbia, fire broke [64] out in the engine room resulting in the sinking and total loss of the vessel. At trial, the district judge rejected the doctrine of strict liability. The Ninth Circuit reversed, adopting the Restatement of Torts, § 402A as the law of products liability in the circuit for cases arising in admiralty.

(145) Under the doctrine of strict liability, manufacturers,

dealers and retailers are all subject to liability because they are an integral part of the overall producing and marketing enterprise that should bear the cost of injuries arising from defective products.

(146) In *Pan Alaska*, the product defect was an oil filter that Caterpillar knew could crack and spray fuel on a hot engine and that this created an extreme fire hazard. Caterpillar had issued a warning notice to its dealers, but this was held insufficient to insulate Caterpillar from liability in view of the extremely dangerous condition to both life and property from a fuel fire on vessels sailing the high seas.

(147) The Ninth Circuit adopted the rule of comparative negligence to strict product liability citing with approval the rule of *Butaud vs. Suburban Marine*, 555 [65] P.2d 42 (Alaska 1976). Quote:

> "We feel that the public policy reasons for strict product liability do not seem to be incompatible with comparative negligence. The manufacturer is still accountable for all the harm from a defective product except that part caused by the consumer's own conduct." *Butaud*, 555 P.2d at 46.

(148) Having adopted the rule of comparative negligence to strict products liability, the Ninth Circuit addressed the question of what conduct of the plaintiff should be compared. The court answered that question, saying, quote,

> "In short, we hold that all of the Plaintiff's conduct contributing to his loss or injury can

> be compared to the Defendant's liability regardless of the label attached to that conduct."

This ruling marks a significant departure from that part of § 402A of the Restatement which would bar recovery by a plaintiff who voluntarily and unreasonably proceeds to encounter a known risk amounting to assumption of the risk.

In specifically rejecting that provision of Restatement § 402A, the Ninth Circuit ruled, quote:

> "Such 'all or nothing' defenses are inequitable in their operation because they fail to distribute responsibility in proportion to fault and place upon one party the entire [66] burden of a loss for which two are, by hypotheses, responsible."

(149) I conclude the rationale of the Ninth Circuit in *Pan Alaska* is particularly appropriate to the controlling issues in the present case.

(150) The MARCO hydraulic system as installed was delivered to the owner of the *Saratoga* with an unreasonably dangerous defect. Obviously, the hydraulic system operated satisfactorily and safely from 1972 until 1984 when Captain Vargas resumed command of the *Saratoga*.

In the period 1984 until the loss of the *Saratoga* in January 1986, the hydraulic system was not maintained as well as it should have been, but more than that, Captain Vargas wanted to increase the speed and power of the hydraulic system in order to make the most of every fishing opportunity that arose.

(151) In order to accomplish his purpose, Captain Vargas enlarged the net aboard the *Saratoga*, increased the size of the power block, installed an electric drive with pump to supplement the power drive and otherwise called upon the engineers aboard the *Saratoga* to increase velocity of hydraulic flow and power to the machinery and equipment.

[67] The engineers well understood that increased velocity of flow of hydraulic fluid would increase the temperature of the hydraulic fluid causing loss of viscosity in the fluid, thus resulting in more wear and accelerated deterioration of the component parts of the system including hydraulic hoses.

(152) The impact of the increased velocity of flow in the system and the operation of the hydraulic system in excess of design pressures and temperatures brought about increasing failures and malfunction in the operation of the hydraulic system.

(153) Not only were the engineers on *Saratoga* aware of the consequences of operating the hydraulic system beyond its design pressure and temperatures, but they informed Captain Vargas that the hydraulic system was overworked, wearing out and prone to an increasing number of failures.

(154) The conditions causing the hydraulic system to operate in excess of design pressures and temperatures increased the probability of failure in the components in the system including hydraulic hose. More than that, the engineers of the *Saratoga* observed the [68] consequences of misuse of the hydraulic system and the failures, breakdown and wearing out of the system. They informed Captain Vargas of the increasing problems with the hydraulic system, but he continued to operate

the equipment and the machinery of the hydraulic system excess of design pressures and temperatures and to defer needed remedial measures until such time as the *Saratoga* should complete its fishing voyages.

(155) The use of the hydraulic system after the defective one-and-one-quarter-inch hydraulic hose was discovered and known to be damaged and after arrangements had been made with the *Chiriqui II* to provide a replacement border on irresponsible conduct.

Although Chief Engineer Nielsen in his deposition testified he did not consider the defective hose to be dangerous, he had to be aware that it required replacing and that the hydraulic system should not be operated.

Nielsen informed Captain Vargas so that a replacement could be obtained. Nielsen in fact had a great deal of experience and knowledge with hydraulic systems. I do not accept his testim ny that he was unaware of the unreasonable risk of danger created by the defective hose.

[69] (156) Placing the hydraulic system into operation to make a set with a defective hose created an unreasonable and extreme danger that the hose might fail and hydraulic fluid might come in contact with the heated surface of the Cat engine and turbocharger and, of course, that is precisely what happened.

(157) Respondents rely upon *C&S Fuel vs. Clark Equipment*, 552 F.Supp. 340 (E.D. Kentucky 1982). In that case, a tractor shovel was destroyed by fire from hydraulic fluid coming in contact with parts of the engine sufficiently hot to cause ignition. A deflector plate which provided marginal safety

in isolating hydraulic fluid from the hot surfaces of the engine had been substantially changed by a prior owner of the shovel in a way not foreseeable to the manufacture.

The District Court found the design of the shovel defective under strict liability standards. However, the court held any substantial change after the product has left the manufacturer will serve to insulate the manufacturer from liability.

(158) Respondent suggests that removal of the water shield or jacket from the turbocharger attached to the D333 Cat engine amounted to a substantial change [70] insulating Martinac and MARCO from liability.

(159) I have found that the evidence fails to prove that the water jacket or shield on the turbocharger attached to the D333 Cat had been removed prior to January 16, 1986. However, there were substantial changes or modifications to the hydraulic system which I find have contributed in some part to the cause or the failure of the hydraulic hose causing the hydraulic fluid to escape and the ignition of the fire on January 16th.

Moreover, I have found that the hydraulic hose that failed was in a defective condition and known to be defective at the time the hydraulic system was put into operation to make the set in the afternoon of January 16.

The hydraulic system had been operated for some period of time prior to January 16th in excess of design limitations for temperature and pressure. I have found as well that the use of the hydraulic system with the defective hose was a substantial cause of the failure of the hydraulic hose.

(160) So that there will be no doubt of my ruling on the critical legal issue, I reject the rationale of *C&S Fuel vs. Clark Equipment* and of other cases which hold that a substantial change in the product or a [71] substantial change in the use of a product serves to insulate the manufacturer of a product which is defective at the time it leaves the manufacturer.

(161) I read *Pacific Alaska vs. Marine Construction*, the controlling case in the Ninth Circuit, to specifically reject such "all or nothing defenses" because they fail to distribute responsibility in proportion to fault and place upon one party the entire burden of a loss for which two are responsible.

(162) In the present case the MARCO hydraulic system at the time it was installed in the *Saratoga* created an unreasonable risk of fire in the event of failure of the hydraulic hoses. Failure of the hydraulic hoses could have occurred in a number of ways, some of which were identified by respondent's expert, Grief. But hydraulic hose failure was foreseeable not only for the reasons Grief articulated, but for numerous other causes including misuse, poor maintenance and defects of the hose, both apparent and non-apparent.

(163) The failure of the hydraulic which allowed hydraulic fluid to escape and come in contact with hot surfaces on the turbocharger attached to the D33[illegible] Cat was [72] not only caused by the defective design in the MARCO hydraulic system but misuse of the hydraulic system caused by a numb[illegible]of factors.

The modification of the hydraulic system caused it to be operated with temperatures and pressures in excess of design limitations. The hydraulic system was poorly maintained. Sand and grit which entered the system during shipyard repairs had not

been carefully cleaned or removed. The hydraulic system was operated with a defective hose which failed and immediately caused the fire to ignite.

(164) The MARCO hydraulic system, a defective product, was in part responsible because the failed hydraulic hose was in close proximity to the heated surface of the engine and turbocharger, without barriers or shields to isolate the hydraulic fluid from the sources of ignition.

(165) The misuse of the system and negligence of the engineers and the captain of the *Saratoga* were substantial causes of the failure of the hydraulic hose, which allowed the hydraulic fluid to escape and come into contact with hot surfaces which ignited the hydraulic fluid. Sharing the responsibility for the loss in proportion to fault makes sense and I conclude is [73] consistent with the rule of the Ninth Circuit.

(166) The designer and manufacturer of the defective hydraulic system was MARCO, but the system was installed by Martinac Shipyards. Martinac had a duty to provide a safe vessel. Both MARCO and Martinac are liable for the defective product.

(167) In this case I conclude that the greater fault for the catastrophic fire brought about the failure of the hydraulic hose and which ultimately caused the loss of the *Saratoga* and all the property aboard her lies with the engineers and the captain of the vessel.

I conclude that Saratoga Fishing should bear two thirds of the loss of the *Saratoga*, and Martinac Shipbuilding and MARCO Seattle should jointly bear one third of the loss.

That will end the findings and conclusions on liability. It's my intention that, as soon as I can review the issues of law and the evidence on the damages, to enter findings and conclusions on the damage issues.

(Proceedings concluded.)

[74] I certify that the foregoing is a correct transcript from the electronic sound recording of the proceedings in the above-entitled matter.

s/ Mary Lou Lohr — 3-25-93
Transcriber — Date

APPENDIX F — ORAL FINDING ON DAMAGES DELIVERED BY THE DISTRICT COURT ON AUGUST 31, 1993

UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF CALIFORNIA

Case No. 87-1691-F

Anchorage, Alaska
Thursday, May 28, 1993
10:48 o'clock a.m.

SARATOGA FISHING COMPANY,

Plaintiff,

vs.

J.M. MARTINAC & COMPANY and MARCO SEATTLE, INC.,

Defendants.

FINDINGS AND CONCLUSIONS ON DAMAGE

TRANSCRIPT OF PROCEEDINGS

BEFORE THE HONORABLE JAMES M. FITZGERALD
UNITED STATES DISTRICT JUDGE

APPEARANCES:

Court Recorder: NATALIE DAY
U.S. District Court
222 West 7th Avenue
Anchorage, Alaska 99513-7564
(907) 271-3259

Appendix F

Transcription Service: KRON ASSOCIATES
Court Reporting
1113 West Fireweed, Suite 200
Anchorage, Alaska 99503
(907) 276-3554

Proceedings recorded by electronic sound recording, transcript produced by transcription service.

[2] ANCHORAGE. ALASKA – THURSDAY. MAY 28. 1993

(On record at 10:48 a.m.)

THE CLERK: On record.

THE COURT: And this is the case, it starts out (indiscernible) and Martinac & Company and others. And these are the findings and conclusions in San Diego. And I'm now putting on the findings on damages. And the format is that each one of the finding — each one of the conclusions will be numbered and there will be a double space, that's the way it's done, and then we order out the conclusions on damages.

And I'll put it on the record, but we will give you a — I'll give you this — my notes so you can take my notes and copy them and just return the original to the chambers.

Conclusion — one of the conclusions, the final conclusion, which has to do with the calculations and the numbers, I'm — can be a — doesn't have to be attached and I'm not going to put it of record, it'll just become part of the conclusions on damages.

THE CLERK: Okay.

Appendix F

THE COURT: To be attached —

THE CLERK: With the transcript.

THE COURT: — at the — when they return the transcript of the conclusions.

I begin. And this is case number 87-1691. It's in the Southern — in the U.S. District Court for the Southern [3] District of California.

On March 18th, 1993, I entered partial findings and conclusions on the liability issues in this case. This order represents the findings and conclusions on damages.

(1) Conclusion 1. I conclude that the proper distinction between the vessel and, quote, "other property," end of quote, under the rule announced in *East River Steamship Corporation vs. Transamerican Deleval*, D-e-l-e-v-a-l, *Incorporated*, 476 U.S. 858, 1986, defines the vessel at the time of the first sale to a commercial customer. A plaintiff may not recover the value of items originally included in the vessel or replacements. Plaintiff may recover the value of other property aboard the Saratoga. *Nicor*, N-i-c-o-r, *Supply Ships Associated vs. General Motors Corporation*, 876 F. 2d. 501, Fifth Circuit 1989.

(2) Conclusion 2. And as I say, there'll be a double space between each of the conclusions. Defendants or respondents concede that the Saratoga was originally sold to Mr. Madrugas, M-a-d-r-u-g-a-s, without a skiff or net. However, respondents argue that the fact that the Saratoga was later sold by Madrugas to Vargas, quote, "as is," end of quote, with a skiff and net requires the conclusion that the skiff and net are now appurtenant

to the vessel under the analogy to maritime lien cases. See *First National Bank & Trust Company vs.* [4] *Oil Screw Olive L. Moore*, 370 F. Supp. 1382, 1973, *affirmed*, 521 F. 2d. 1401, parentheses (Sixth Circuit 1975), end of parentheses.

I disagree for two reasons. First, I conclude that the underlying policy rationale of maritime liens is to give as broad an interpretation of vessel as possible to permit recovery. This rationale is inapplicable to the distinction between the vessel and other property under East River.

Second, I conclude that the definition of the vessel I should change — would change with each successive sale of the boat, including and then excluding the new or removed items on board. This rule of law would be awkward and illogical.

(3) Conclusion 3. Respondents argue that because Vargas, V-a-r-g-a-s, purchased the Saratoga from Madrugas, M-a-d-r-u-g-a-s, with a skiff and net, these items should be defined as part of the vessel, yet seem to indicate that if Vargas had bought the boat in the bare condition one day and the skiff and nets the next, that they would then be, quote, "other property," end of quote, under *East River.*

I conclude that the more rational rule defines the vessel at the time of the original sale to the buyer or — this dovetails with the idea that the existence of a product defect is determined at that time.

[5] (4) Four — Conclusion 4. Plaintiff argues that recovery should be allowed for the replacement parts installed in the Saratoga from the time of its launch — it should be at the time of her launch. Respondents offer authorities holding Section 402,

Subpart A inapplicable under *East River* when replacement parts destroy a product. Citing to *Petroleum Helicopters, Incorporated vs. Avco*, A-v-c-o, *Corporation*, 930 F. 2d. 389, parentheses (Fifth Circuit 1991), end of parentheses; *American Universal Insurance Group vs. General Motors Corporation*, 578 So. 2d. 451, parentheses (Florida Appellate 1991), end of parentheses.

The present case is to some extent the reverse. A separate defect has destroyed the replacement parts. I conclude that these cases teach little about the present case.

(5) Conclusion 5. Nevertheless, I find that — respondents' other arguments compelling. I find and conclude that the plaintiff should not be allowed to recover for replacements to original portions of the vessel. The rule suggested by plaintiff would result in a gradual increase in the liability of the shipbuilder as more of the original components are replaced. In other words, as the performance of the product has less relationship to the conduct of the shipbuilder, the shipbuilder's liability grows. I conclude such a result is inconsistent with *East River* and sound [6] admiralty policy.

(6) Conclusion 6. Respondents claim that each of the crewmembers should make a separate claim against the respondents in product liability to recover for their personal effects. I conclude that plaintiff made a good faith and I reasonable settlement of valid claims and should be allowed to recover for this loss. Respondents cite *East Mississippi Electric Power Association vs. Porcelain Products Company*, 729 F. Supp. 512, parentheses (Southern District Mississippi 1990), end of parentheses, for the proposition that recovery for the settlement of claims is economic damage. Even if this is — were

to be the case, this is not a situation, quote, "when the only injury claimed is economic loss," end of quote, *East River,* 476 U.S. at 876.

I conclude that $21,750 paid to the crew on 6/17/86 was a good faith settlement of claims against the Saratoga for the loss of personal effects and is a proper element of damage in this case.

(7) Conclusion 7. I also conclude that plaintiffs should be allowed to recover for the good faith and reasonable claims for the rescue of the crew. While respondents cite authority for the proposition that under a life salvage theory a rescuer can recovery only against the vessel, Eurypylus, E-[7] u-r-y-p-y-l-u-s, *Limitation*, 1945 A.M.C. 1367, parentheses (Southern District New York 1985), end of parentheses, that same case holds that the rescuer can recover on a quasi-contract theory for performing the maintenance and cure obligations of the vessel's owners. See 1377-80.

(8) Conclusion 8. Original claims made by the Chiriqui, C-h-i-r-i-q-u-i, II for the costs of rescuing the crew totaled over $85,000. These were eventually compromised and settled for $21,282.76. I conclude that the settlement was a reasonable and good faith resolution of claims against the plaintiff arising out of the sinking of the Saratoga. It is a proper element of damages. This expense was incurred by plaintiff on 12/12/86.

That should be Conclusion 8. Did I put down 8 there?

THE CLERK: Yes, Your Honor.

(9) Conclusion 9. Plaintiff's expert witnesses on the fishing industry, Charles Peckham, P-e-c-k h-a-m, of Living

Marine Resources, testified that the yellowfin and skipjack tuna aboard the Saratoga would have a marketable weight of 897 tons and a value of $679,450 at Puerto Rico. Respondents' fisheries expert, Leroy Lester, L-e-s-t-e-r, applied a four-percent reduction for over-estimates and the rejection of unsuitable fish.

[8] I find Mr. Peckham to be a more experienced and credible witness on fisheries matters and adopt his estimate of the weight and value of the fish at Puerto Rico. However, the estimate of the value does not include the fuel costs or Panama Canal toll charges involved in getting the catch to Puerto Rico. I conclude that these costs should be deducted from the value of the tuna catch to accurately determine the amount of the tuna loss. I adopt Mr. Lester's estimates that canal dues would total 27,000 and fuel costs would total $22,142. I reject plaintiff's claim that the canal dues and federal fees — and fuel fees would be, quote, "offset by the additional 103 tons of tuna Saratoga would likely have caught on her way to Puerto Rico," end of quote, as too speculative. Damages for the loss of the fish cargo total $630,308.

(10) Conclusion 10. Marine surveyor Henderson, H-e-n-d-e-r-s-o-n, examined the purse seine net aboard the Saratoga in 1985 and found it to be in good condition. Captain Vargas gave detailed testimony about the characteristics and condition of the net. Plaintiff's expert, Captain Kenneth Franke, F-r-a-n-k-e, relied on these observations of the good condition of the net in estimating the value of the net to be 350,000. Respondents' expert, Mr. Lester, did not rely on personal observations of the net in estimating 132,000 value. I finally conclude Captain Franke's testimony to be [9] more credible. Damages to the net are 350,000.

Mr. Henderson and Captain Vargas testified from personal knowledge that the skiff was in very good condition. Plaintiff's experts, Mr. Henderson and Mr. Franke, agreed on a $95,000 value for the skiff. I find and conclude the testimony of these three witnesses to be more credible than Mr. Lester's estimation of a $50,000 value. Damages for the loss of the skiff are $95,000.

(11) Conclusion 11. Captain Vargas estimated that the safe on board the Saratoga contained $16,000 in cash or money. This testimony was not effectively refuted. I find I and conclude Captain Vargas' testimony on this matter to be credible.

(12) Conclusion 12. Exhibit 357 lists the amount of fuel on board the Saratoga at the time of sinking as 105 gallon — 105,000 gallons. At trial, Captain Vargas claimed a higher amount of fuel. Plaintiff originally claimed a price of 96 cents per gallon for the fuel in Puerto Rico, but testimony at trial indicated the proper price was 86 cents per gallon. I find and conclude that damages for the loss of fuel aboard the Saratoga should be 105,000 at 86 cents per gallon, for a total loss of $90,300.

[10] (13) Finding 13 — or Conclusion 13. There is considerable confusion in the evidence about the types and value of miscellaneous other property on board the Saratoga at the time she was lost, both in the evidence and in the closing memorandums of the parties. Captain Vargas testified about the existence of a great number of particular pieces of equipment aboard the Saratoga and whether each was or was not replacement for original equipment.

Where Captain Vargas is unsure, I find that the plaintiff fails to establish that the loss of the item is recoverable under *East River*. Competing valuations for the equipment were substituted

— submitted by Mr. Franke and Mr. Lester as expert valuation witnesses for the plaintiff and respondents, respectfully — respectively.

Mr. Franke used the replacement cost as the measure of the value of the equipment despite the fact that old equipment was used rather than new. Mr. Lester applied a salvage value. Plaintiffs argue that replacement value is justified because tuna boats cooperated to make a, quote, "market," end of quote, by borrowing equipment and repaying the lending boat by replacing the item or crediting the shoreside account, both of which would be at the full replacement value. While this may be true for individual items on an emergency basis, I do not believe that it represents a reasonable estimation of the value of the equipment lost.

[11] (14) Conclusion 14. I find and conclude that Mr. Lester's use of salvage value more accurately reflects the loss incurred. As previously noted, plaintiff may not recover the value of replacement parts. The value of the skiff, net, fish, and fuel has been separately established. Plaintiff should recover for only five, rather than six, speedboats, one being given to the rescue vessel, and the total value of the speedboats is $12,500. The value of the Mercury engines is $12,907. The total value of all other property established with reasonable certainty to be non-replacement equipment is $14,498. The total value of the miscellaneous other property is, therefore, $39,905. Respondents estimate the total value of the other property as valued by Mr. Lester at $54,130.

(15) Conclusion 15. Plaintiff urges this Court to use the California statutory prejudgment interest rate of 10 percent. I conclude that this would be inappropriate. Plaintiff asserts that

there is no established maritime rule on the rate of prejudgment interest. Under maritime law, the prejudgment interest rate is the most recent 52-week T-bill rate, quote:

> "... unless the trial judge finds, on substantial evidence, that the equities of the particular case require a different rate."

Western Pacific Fisheries. Incorporated vs. SS President Grant, 730 F. 2d. 1280, see 1288 and 89, Ninth Circuit 1984. [12] The Saratoga sank on the morning of January 17th, 1986. The previous day, 52-week treasury bills sold at auction at 7.85 percent. Interest rates peaked in 1989 at about 9.5 percent and fell to about 3.5 percent in early 1993. Even with the benefit of this hindsight knowledge, I find and conclude that 7.85 is a fair interest rate, based on the equities of the case. I find no substantial evidence that this rate would be unfair.

(16) Finding 16. Plaintiff argues that prejudgment interest is awarded in maritime cases as a matter of course. While this is true as a general rule, the District Court has a limited discretion to deny prejudgment interest in peculiar or exceptional cases. The Fifth Circuit has held that a high degree of contributory negligence may be a sufficient reason for a District Court to deny prejudgment interest. *Inland Oil and Transport Company vs. Ark*, A-r-k, dash, *White*, W-h-i-t-e, *Towing Company*, 696 F. 2d. 321, see 328-29, Fifth Circuit 1983.

The Ninth Circuit has indicated but not conclusively established that a high degree of contributory negligence is an insufficient basis for the denial of prejudgment interest. See *Alkmeon*, A-l-k-m-e-o-n, *Naviera*, N-a-v-i-e-r-a, *S.A. vs. M/V Marina*, M-a-r-i-n-a, *L*, 633 F. 2d. 789, at 798 note 12, parentheses (Ninth Circuit 1980), end of parentheses.

[13] I am mindful of the principle that, quote, "prejudgment interest is an element of compensation and not a penalty," end of quote. See at 797. I find and conclude that the resent case is not sufficiently peculiar or exceptional to justify departure from the general rule allowing prejudgment interest in admiralty cases.

Respondents should be taxed prejudgment interest on their proportionate share of the damage from the date of the loss until final judgment is entered in this case at the rate of 7.85 percent.

(17) Conclusion 17 includes the calculations of damages. And finally — and that should be attached to the conclusions. And make a final conclusion that respondents should be taxed interest at the rate of $153.09 per day, starting June 1, 1993. The — I will also direct Saratoga Fishing to present a proposed — present and serve a proposed form of judgment in accordance with my — the findings and conclusions I've made in this case.

THE CLERK: Off record.

(Court recessed at 11:12 a.m.)

END OF PROCEEDINGS

I certify that the foregoing is a correct transcript from the electronic sound recording of the proceedings in the above-entitled matter.

s/ illegible
Notary Public in and for Alaska
My commission expires: 2-18-95

Appendix F

X. Total

	Damage	Defendant Portion	Date of Injury	Interest to 1/1/87	Total to 1/1/87
Tuna	$ 630,308	$ 210,103	1/17/86	$ 15,725	$ 225,828
Net	$ 350,000	$ 116,667	1/17/86	$ 8,732	$ 125,399
Skiff	$ 95,000	$ 31,666	1/17/86	$ 2,370	$ 34,036
Fuel	$ 90,300	$ 30,100	1/17/86	$ 2,253	$ 32,353
Equip.	$ 39,905	$ 13,302	1/17/86	$ 996	$ 14,298
Crew	$ 21,750	$ 7,250	6/17/86	$ 307	$ 7,557
Rescue	$ 21,283	$ 7,094	12/12/86	$ 29	$ 7,123
Cash	$ 16,000	$ 5,333	1/17/86	$ 399	$ 5,732
Total	**$1,264,546**	**$ 421,515**			**$ 452,326**

Appendix F

Total Damage With Prejudgment Interest

1/1/87	—	12/31/87	$ 487,833.59
1/1/88	—	12/31/88	$ 526,128.52
1/1/89	—	12/31/89	$ 567,429.60
1/1/90	—	12/31/90	$ 611,972.82
1/1/91	—	12/31/91	$ 660,012.68
1/1/92	—	12/31/92	$ 711,823.67
1/1/93	—	05/31/93	$ 734,940.38

Defendants should be taxed interest at the rate of $153.09 per day starting June 1, 1993.

Dated June 22, 1993 s/ James M. Fitzgerald
JAMES M. FITZGERALD, Senior Judge
United States District Court